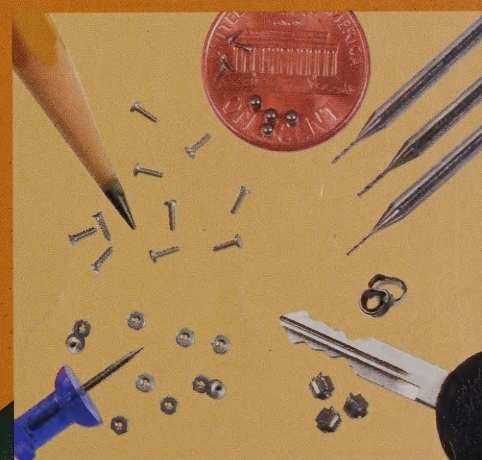
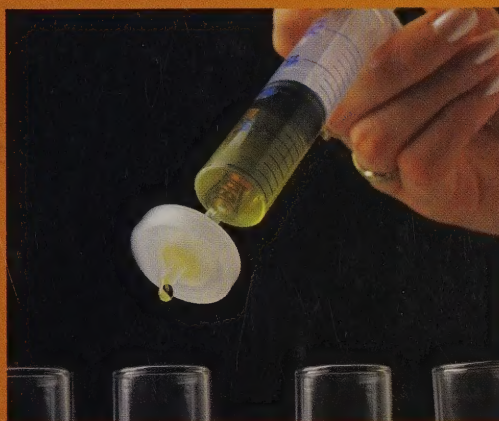
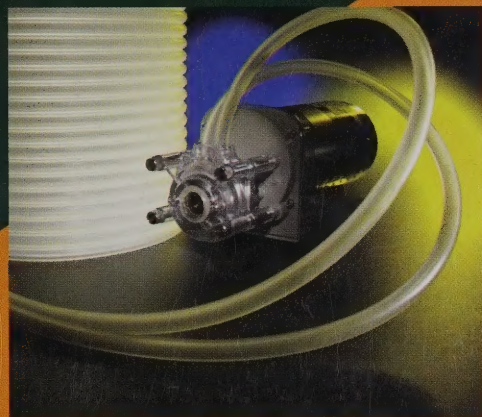




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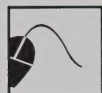


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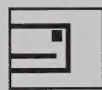
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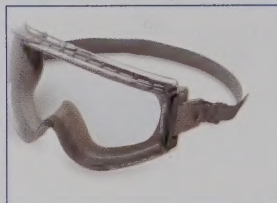
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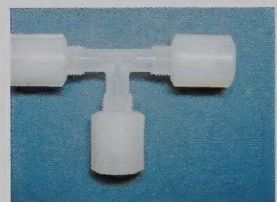
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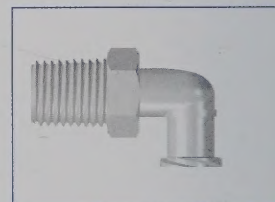
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Tygon® Ultra Chemical Resistant Tubing

Formulation 2075

Tygon® 2075 ultra chemical resistant tubing offers an unequalled combination of chemical resistance, clarity and flexibility. Tygon® ultra chemical resistant tubing is virtually unaffected by acids, bases, ketones, salts and alcohols. It is entirely plasticizer-free, eliminating fluid contamination and the premature embrittlement and cracking common with many flexible tubing. Its exceptionally smooth inner surface inhibits particulate buildup and reduces the potential for contamination. Tygon® 2075 ultra chemical resistant tubing can be sterilized by EtO gas or steam in an autoclave.

Benefits:

- Resistant to highly aggressive chemicals
- Plasticizer-free — minimizes risk of fluid contamination
- Exceptionally smooth inner surface inhibits particulate buildup
- Low sorption maintains fluid integrity
- Meets USP Class VI criteria

Tygon® 2075 - Ultra Chemical Resistant Tubing

Dimension in Inches			Wall Thickness (inches)	Minimum Bend Radius	Max. Working Pressure at 73°F (psi)**	Vacuum Rating, In. of Mercury at 73°F	10 Ft.	25 Ft.	50* Ft.
Part No.	I.D.	O.D.							
TUC-062A	1/16	3/16	1/16	1/4	50	29.9	\$9.70	\$24.20	\$44.00
TUC-125A	1/8	1/4	1/16	1/4	30	29.9	15.10	37.70	68.50
TUC-187A	3/16	5/16	1/16	1/2	20	29.9	16.70	41.75	75.85
TUC-250A	1/4	3/8	1/16	3/4	18	29.9	18.70	46.70	84.90
TUC-375A	3/8	1/2	1/16	1-1/2	13	20	23.20	57.95	105.30
TUC-500A	1/2	3/4	1/8	1-1/2	18	29.9	52.55	131.40	238.85

*Meets USP Class VI Criteria. Available in 50 Ft. only. **Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.



Tygon® High Purity Tubing

Formulation 2275

Tygon® high-purity tubing is ideal for handling sensitive fluids such as pharmaceutical or biological solutions. There is virtually no absorption of key fluid constituents into the tubing material or fluid adsorption onto the tubing walls. As a result, fluid alteration and loss is limited. There is no plasticizer to leach into or contaminate the fluid, yet the tubing remains flexible.

Tygon® high-purity tubing can be sterilized by radiation, ethylene oxide, steam or chemical methods.

Frequently, incineration is used to dispose of contaminated materials. While many tubing release hazardous by-products when burned, Tygon® high-purity tubing only releases carbon dioxide and water when properly incinerated, providing safe disposal.

Benefits:

- Provides an uncompromising fluid path for sensitive solutions
- Low sorption maintains fluid integrity
- Plasticizer-free — virtually no extractable
- Environmentally friendly — safe to dispose of through incineration
- Documented biocompatibility to the ISO 10993 Standard
- Meets USP Class VI, FDA and NSF criteria

Tygon® 2275 - High Purity Tubing

Dimensions in Inches			Wall Thickness	Minimum Bend Radius	Max. Working Pressure at 73°F (psi)**	Vacuum Rating In. of Mercury at 73°F	10 Ft.	25 Ft.	50* Ft.
Part No.	I.D.	O.D.							
TPT-062A	1/16	3/16	1/16	1/4	50	29.9	\$11.50	\$28.75	\$52.25
TPT-125A	1/8	1/4	1/16	1/4	30	29.9	18.00	45.00	81.80
TPT-187A	3/16	5/16	1/16	1/2	20	29.9	19.50	48.70	88.50
TPT-250A	1/4	3/8	1/16	3/4	18	29.9	21.00	52.50	95.40
TPT-375A	3/8	1/2	1/16	1-1/2	13	20	26.35	65.85	119.65
TPT-500A	1/2	3/4	1/8	1-1/2	18	29.9	58.30	145.75	265.00

*Meets USP Class VI, FDA and NSF criteria. Available on 50 Ft. only.

**Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.



Tygon® Beverage Tubing

Formulation B-44-3

Tygon® beverage tubing is specially formulated for transferring a wide variety of beverages including soft drinks, fruit juices, flavored teas and bottled water. In virtually all cases, Tygon® beverage tubing will not affect the taste or odor of product transferred through it, while its excellent non-wetting properties facilitate complete drainage and permit simple flush-cleaning.

Many of the unique properties inherent to Tygon® beverage tubing also apply to a wide variety of complex applications ranging from fine cosmetic production to the dispensing of water-based printing inks found in the publishing industry. The versatility and proven performance of Tygon® beverage tubing have made it today's most widely specified clear, flexible plastic tubing.

Durometer hardness: Shore A, 63.

Benefits:

- Taste-free and odor-free
- Broad chemical resistance to virtually all non-solvent chemicals
- Meets FDA, 3-A and NSF criteria
- Non-wetting surface permits thorough cleaning and complete drainage
- Lightweight and flexible for easy, quick installation

Tygon® B-44-3 - Beverage Tubing

Dimensions in Inches			Wall Thickness	Minimum Bend Radius	Max. Working Pressure at 73°F (psi)**	Vacuum Rating In. of Mercury at 73°F	10 Ft.	25 Ft.	50* Ft.
Part No.	I.D.	O.D.							
TBT-062A	1/16	1/8	1/32	1/4	70	29.9	\$4.55	\$11.30	\$20.50
TBT-062B	1/16	3/16	1/16	1/8	108	29.9	11.20	28.00	50.90
TBT-093A	3/32	5/32	1/32	3/8	47	29.9	6.55	16.30	29.60
TBT-093B	3/32	7/32	1/16	1/4	78	29.9	13.90	34.65	63.00
TBT-125A	1/8	3/16	1/32	1/2	45	25.0	3.80	9.45	17.10
TBT-125B	1/8	1/4	1/16	3/8	62	29.9	9.05	22.60	41.05
TBT-187A	3/16	1/4	1/32	1	34	11.0	4.50	11.15	20.25
TBT-187B	3/16	5/16	1/16	5/8	45	29.9	10.80	26.95	48.95
TBT-250A	1/4	3/8	1/16	1	36	25.0	12.35	30.80	56.00
TBT-375A	3/8	1/2	1/16	1-3/4	26	11.0	17.55	43.85	79.65
TBT-500A	1/2	5/8	1/16	2-7/8	20	6.0	21.10	52.75	95.90
TBT-500B	1/2	3/4	1/8	1-3/4	36	25.0	38.70	96.75	175.90

*Meets FDA, 3-A and NSF criteria. Available on 50 Ft. only.

**Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.



Tygon® Medical Surgical Tubing Formulation S-50-HL

Medical/Surgical tubing was originally developed for use in cardiac surgery. The consistent quality provides dependable performance in medical device applications. It has been fully tested for biological safety to the ISO 10993 standard.

Durometer hardness: Shore A, 66.

Tygon® Medical/Surgical tubing can be sterilized by radiation, Ethylene Oxide, steam or chemical methods.

Benefits:

- Ideal for contact with blood
- Flexible and resilient with established performance in peristaltic pump applications
- Fully characterized to ISO 10993 and FDA guidelines for biocompatibility
- Meets USP Class VI criteria



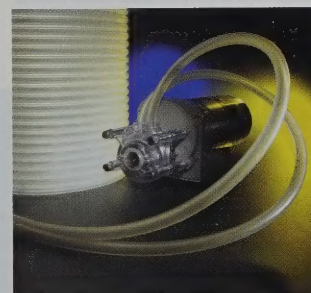
Tygon® Laboratory Tubing Formulation R-3603

Tygon® formulation R-3603 laboratory tubing is crystal-clear and flexible and can handle virtually all inorganic chemicals found in the lab. It is non-oxidizing and non-contaminating.

It is long-lasting, crack-resistant, and is less permeable than rubber tubing. The glassy-smooth inner bore helps prevent buildup and facilitates cleaning. This tubing is autoclavable. Coils are marked at 1-foot intervals for easy measuring. Remains flexible at -45°F (43°C). Durometer hardness: Shore A, 55.

Benefits:

- Outstanding chemical resistance
- Lot-to-lot consistency for reproducible results
- Ideal for condensers, incubators, desiccators, gas lines and drain lines



Tygoprene® Pump Tubing

This tubing was designed specifically for peristaltic pump applications and has a pump life over 500 hours. It is extremely flexible and exhibits superior flex life, reducing downtime due to tubing failure. Tygoprene® can also be used as a substitute for silicone and PVC where longer pump life is required.

Tygoprene® tubing is translucent and has excellent chemical resistance to a wide range of fluids including acids and bases. This tubing remains flexible at -40°F and is temperature resistant to 250°F. Tygoprene® pump tubing complies with FDA CFR 21,177.1210* criteria for food contact applications; is NSF listed under standard 51* and has also passed the UL 94-HB* flammability resistance classification.

Tygoprene® tubing has low extractables making it ideal for applications like ink transfer, soap and detergent delivery. It also does not impart taste to fluids making it an excellent choice for cold or hot beverage delivery and food transfer. It is also used for general chemical transfer and laboratory applications requiring long pump life and low extractables.

Tygon® S-50-HL - Medical/Surgical Tubing

Part No.	Dimensions in Inches			Minimum Bend Radius	Maximum Working Pressure at 73°F (psi)**	Vacuum Rating, In. of Mercury at 73°F	50*		
	I.D.	O.D.	Wall Thickness				10 Ft.	25 Ft.	50 Ft.
TMT-031A	1/32	3/32	1/32	1/8	100	29.9	\$1.75	\$4.30	\$7.75
TMT-062A	1/16	1/8	1/32	1/4	55	29.9	2.85	7.10	12.85
TMT-062B	1/16	3/16	1/16	1/8	100	29.9	6.95	17.30	31.45
TMT-093B	3/32	5/32	1/32	3/8	40	29.9	3.55	8.80	16.00
TMT-093A	3/32	7/32	1/16	1/4	70	29.9	8.60	21.45	39.00
TMT-125A	1/8	3/16	1/32	1/2	30	25.0	4.30	10.70	19.45
TMT-125B	1/8	1/4	1/16	3/8	55	29.9	10.30	25.65	46.60
TMT-187A	3/16	1/4	1/32	1	20	10.0	6.10	15.25	27.70
TMT-187B	3/16	5/16	1/16	5/8	40	29.9	14.70	36.65	66.60
TMT-250A	1/4	3/8	1/16	1	30	25.0	17.65	44.05	80.05
TMT-250B	1/4	1/2	1/8	5/8	55	29.9	35.65	89.10	162.00
TMT-375A	3/8	1/2	1/16	1-3/4	20	10.0	25.05	62.65	113.85
TMT-375B	3/8	5/8	1/8	1-1/8	40	29.9	46.65	116.55	211.90
TMT-500A	1/2	5/8	1/16	2-7/8	18	6.0	30.20	75.40	137.05
TMT-500B	1/2	3/4	1/8	1-3/4	30	25.0	57.75	144.35	262.45

*Fully characterized to ISO 10993 and FDA guidelines for biocompatibility & Meets USP Class VI criteria. Available in 50 Ft. only. **Safety factor of 5 to 1 ratio of burst pressure to working pressure.

Tygon® R-3603 - Laboratory Tubing

Part No.	Dimensions in Inches			Minimum Bend Radius (inches)	Maximum Working Pressure at 73°F (psi)*	Vacuum Rating, In. of Mercury at 73°F	50 Ft.		
	I.D.	O.D.	Wall Thickness (inches)				10 Ft.	25 Ft.	50 Ft.
TLT-031A	1/32	3/32	1/32	1/8	80	29.9	\$1.65	\$4.10	\$7.45
TLT-062A	1/16	1/8	1/32	1/4	45	29.9	2.15	5.35	9.70
TLT-094A	3/32	5/32	1/32	3/8	30	29.9	2.80	7.00	12.65
TLT-125A	1/8	3/16	1/32	1/2	25	20.0	3.30	8.15	14.80
TLT-125B	1/8	1/4	1/16	3/8	45	29.9	7.85	19.55	35.50
TLT-187A	3/16	1/4	1/32	1	20	9.00	4.45	11.10	20.15
TLT-187B	3/16	5/16	1/16	5/8	30	29.9	10.75	26.80	48.65
TLT-187C	3/16	3/8	3/32	1/2	40	29.9	17.20	42.90	78.00
TLT-187D	3/16	7/16	1/8	3/8	55	29.9	23.35	58.30	106.00
TLT-250A	1/4	5/16	1/32	1-5/8	15	5.00	5.45	13.60	24.65
TLT-250B	1/4	3/8	1/16	1	25	20.0	12.35	30.80	55.95
TLT-250C	1/4	7/16	3/32	3/4	35	29.9	20.35	50.90	92.50
TLT-250D	1/4	1/2	1/8	1/2	40	29.9	24.95	62.30	113.20
TLT-375D	3/8	1/2	1/16	1-1/2	20	9.00	16.80	41.95	76.25
TLT-375A	3/8	9/16	3/32	1-3/8	25	21.0	21.70	54.25	98.60
TLT-375B	3/8	5/8	1/8	1-1/8	30	29.9	31.20	77.90	141.60
TLT-500A	1/2	5/8	1/16	2-7/8	10	5.00	20.55	51.40	93.40
TLT-500B	1/2	11/16	3/32	2-1/4	20	12.0	28.10	70.25	127.65
TLT-500C	1/2	3/4	1/8	1-1/2	25	21.0	39.30	98.25	178.60

*Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.

Tygoprene® Tubing (Pump Tubing)

Part No.	Dimensions in Inches			Max. Working Pressure at 73°F (psi)	Vacuum Rating, In. of Mercury at 73°F	50*			
	I.D.	O.D.	Minimum Bend Radius			05 Ft.	10 Ft.	25 Ft.	50 Ft.
TYPT-0062	1/16	3/16	1/2	35	29.9	\$9.85	\$18.70	\$42.50	\$68.00
TYPT-0125	1/8	1/4	1/2	20	29.9	10.95	20.90	47.50	76.00
TYPT-0187	3/16	5/16	1/4	13	29.9	13.85	26.40	60.00	96.00
TYPT-0250	1/4	3/8	1	15	29.9	14.40	27.50	62.50	100.00
TYPT-0375	3/8	1/2	2	11	15.0	19.90	37.95	86.25	138.00
TYPT-0500	1/2	3/4	2-1/2	15	29.9	38.25	73.15	166.25	266.00

Note: Working Pressures calculated at a 1.5 ratio relative to burst pressure using ASTM D1599 * Meets FDA Criteria for food and beverage use



Superthane® Polyurethane Tubing

Superthane® Polyurethane tubing is clear, flexible, resistant to oils, greases and fuels*, resistant to weathering^^, tearing, impact, radiation and abrasion, and can withstand a temperature range from -90°F to 175°F. It contains no plasticizer that can cause flow contamination or tube hardening and is manufactured from FDA sanctioned ingredients for use with wet and

fatty food contact surfaces. Ether-based material is listed by the National Sanitation Foundation (NSF 61). This tubing can be heat sealed, coiled, fabricated or bonded.

Common Applications:

Granular Transfer Lines • Grease Lines • Insulating Sleeves • Metering Pumps • Nuclear Power Facilities • Oxygen & Other Gas Lines • Pressure Measuring Devices • Robotics • Slurry Transfer • Small Motor Fuel Lines* • Transfer Lines for Clean Liquids • Transfer Lines for Internal Contamination Fluids • Vacuum Equipment

Physical Properties**	Ester	Ether
Hardness, Shore A ± 5	85	85
Tensile Strength, psi	6000	5500
Elongation at Break, %	550	580
Brittle Temperature	-95°F	-90°F
Max. Operating Temperature	185°F	175°F

**Values listed are typical and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for the application.

Notes:

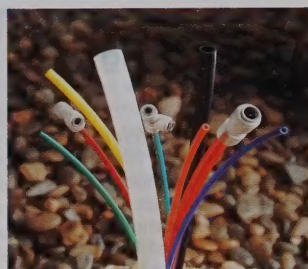
*Although polyurethane is commonly used in fuel applications, due to additives in today's gasoline and petroleum products, field testing should be performed.
^^Hydrolytic Stability -- For resistance to moisture and fungus, SUPERTHANE ether is recommended (Ester polyurethane does not react well with water, prolonged humid conditions, or attack from fungus.) Ether-based SUPERTHANE resists attack from ultra-violet rays making it a good material for outside use, and is listed by the National Sanitation Foundation (NSF 61)

Superthane-Ether® Clear Polyurethane Tubing

Dimensions in Inches						
Part No.	I.D.	O.D.	Wall	10 Ft.	25 Ft.	100 Ft.
SEH-063A	0.063	0.125	0.031	\$2.70	\$5.60	\$20.50
SEH-125A	0.125	0.188	0.031	4.75	9.90	36.40
SEH-125B	0.125	0.250	0.063	7.65	15.90	58.40
SEH-188A	0.188	0.313	0.063	10.10	21.05	77.35
SEH-250A	0.250	0.313	0.031	6.20	12.90	47.40
SEH-250B	0.250	0.375	0.063	11.65	24.25	89.15
SEH-250C	0.250	0.500	0.125	23.35	48.60	178.85
SEH-313A	0.313	0.438	0.063	13.50	28.05	103.25
SEH-375A	0.375	0.500	0.063	16.55	34.45	126.70
SEH-375B	0.375	0.563	0.094	21.60	44.95	165.40
SEH-375C	0.375	0.625	0.125	33.60	70.00	257.50
SEH-500A	0.500	0.625	0.063	21.15	44.00	161.90
SEH-500B	0.500	0.688	0.094	27.35	56.95	209.55
SEH-500C	0.500	0.750	0.125	42.90	89.40	328.90

Superthane-Ester® Clear Polyurethane Tubing

Dimensions in Inches						
Part No.	I.D.	O.D.	Wall	10 Ft.	25 Ft.	100 Ft.
SES-125A	0.125	0.188	0.031	\$5.70	\$10.15	\$32.40
SES-170A	0.170	0.250	0.040	6.60	11.80	37.70
SES-188A	0.188	0.250	0.031	6.50	11.65	37.15
SES-250A	0.250	0.313	0.031	7.95	14.15	45.30
SES-250B	0.250	0.500	0.125	26.40	47.15	150.75
SES-313A	0.313	0.438	0.063	14.15	25.25	80.70
SES-313B	0.313	0.500	0.094	23.40	41.80	133.65
SES-313C	0.313	0.563	0.125	32.60	58.20	186.25
SES-375A	0.375	0.563	0.094	25.20	45.00	144.00
SES-375B	0.375	0.625	0.125	38.50	68.75	220.00
SES-438A	0.438	0.688	0.125	41.65	74.40	238.00
SES-500A	0.500	0.750	0.125	45.85	81.85	261.85



Zelite™ Polyethylene Tubing

LLDPE Tubing

- Made from non-toxic ingredients conforming to FDA standards
- Does not impart a taste or odor
- Flexible, lightweight, durable
- Translucent natural or opaque colors
- Made from 100% virgin grade raw materials
- Good dielectric properties
- Low density is listed by the National Sanitation Foundation (NSF 51)
- Linear Low Density Tubing offers enhanced resistance to stress cracking
- Chemically inert; forms a good barrier to gases, vapors, and moisture

Physical Properties**	Linear Low Density
Hardness, Shore D ± 5	50
Tensile Strength, psi	2250
Elongation at Break, %	600
Brittle Temperature	-76°F
Vicat Softening Point	196°F
Max. Operating Temperature	140°F

**Values listed are typical and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for the application.

Zelite™ Polyethylene Tubing

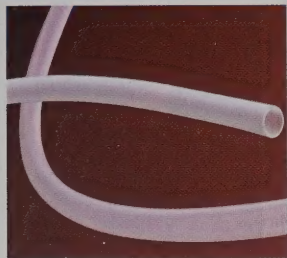
Dimensions in Inches				Working Pressure at 70°F (psi)	Color	10 Ft. 25 Ft. 100 Ft.		
Part No.	ID	OD	Wall					
ZPT-125	0.125	0.250	0.063	180	Black	\$4.90	\$9.50	\$26.00
ZPT-125A	0.125	0.250	0.063	180	Natural	4.45	8.65	23.70
ZPT-170	0.170	0.250	0.040	135	Black	3.50	6.75	18.50
ZPT-170A	0.170	0.250	0.040	135	Blue	3.50	6.75	18.50
ZPT-170B	0.170	0.250	0.040	135	Green	3.50	6.75	18.50
ZPT-170C	0.170	0.250	0.040	135	Natural	3.20	6.25	17.10
ZPT-170D	0.170	0.250	0.040	135	Red	3.50	6.75	18.50
ZPT-170E	0.170	0.250	0.040	135	Yellow	3.50	6.75	18.50
ZPT-188	0.188	0.313	0.063	140	Natural	5.60	10.90	29.95
ZPT-250	0.250	0.375	0.063	120	Black	5.90	11.50	31.50
ZPT-250A	0.250	0.375	0.063	120	Blue	6.05	11.80	32.30
ZPT-250B	0.250	0.375	0.063	120	Green	6.05	11.80	32.30
ZPT-250C	0.250	0.375	0.063	120	Natural	5.70	11.10	30.50
ZPT-250D	0.250	0.375	0.063	120	Red	6.05	11.80	32.30
ZPT-250E	0.250	0.375	0.063	120	Yellow	6.05	11.80	32.30
ZPT-375	0.375	0.500	0.063	80	Black	7.85	15.25	41.80
ZPT-375A	0.375	0.500	0.063	90	Natural	7.75	15.10	41.35
ZPT-500	0.500	0.625	0.063	70	Black	12.45	24.20	66.40
ZPT-500A	0.500	0.625	0.063	70	Natural	12.25	23.65	64.80

PharMed® BPT Tubing



PharMed® BPT tubing is less permeable to gases and vapors than silicone tubing. It is ideal for cell culture, fermentation, synthesis, separation, purification and process monitoring and control. PharMed® BPT tubing is ideal for use in clean-in-place and steam-in-place cleaning and sterilization systems. It is compatible with virtually all commercial cleaners and sanitizers and can be repeatedly autoclaved for up to five cycle times, without affecting overall service life.

PharMed® BPT Tubing has very good general chemical resistance and excellent acid, alkali and oxidation resistance. It is Opaque to visible and UV light helping protect sensitive fluids. Continuous service temperature range is -60°F (-51°C) to 275°F (135°C).

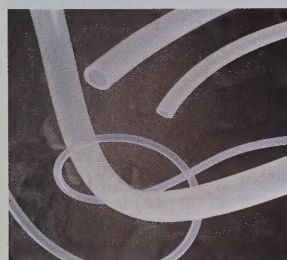


Versilic® SPX-50 High Strength Silicone Tubing

Peroxide-cured Versilic® high-strength silicone tubing is designed for use in applications where flexibility, resiliency and durability are required. Its smooth inner surface reduces the risk of particulate entrapment and microscopic buildup during fluid transfer. In addition, its high and low working temperatures help the tubing retain its flexibility under extreme conditions. Because of its consistently reliable performance, Versilic® high-strength silicone tubing is ideal for applications such as food & beverage dispensing & processing, appliance manufacturing, cosmetic production and electronic equipment.

Benefits

- Can be autoclaved repeatedly
- Documented biocompatibility to the ISO 10993 Standard
- Heat weldable for sterile access in closed systems
- Meets USP Class VI, FDA and NSF criteria



Silcon® Med-X Silicone Tubing Platinum Cured Medical Grade Silicone Tubing

- Silicone elastomer meets USP Class VI requirements
- Manufactured under strict good manufacturing procedures in a controlled environment
- Platinum cured for the highest degree of purity (least extractable)
- Reusable - will withstand repeated sterilization*
- Non-reactive to body tissues and

Physical Properties

Max Operating Temp (°F)	400
Brittle Temp (°F)	-100
Opacity	Translucent
Colors	Natural
Construction	Un-reinforced
Shore Hardness (±5)	50A
Tensile Strength at Break (PSI)	1100
Modulus at 100%	120
Elongation at Break (%)	650
Compression Set (%)	35
Tear Resistance, Die B PPI	200

Applications: Beverage, Blood & Fluid Handling, Dialysis, Food, I.V. Administration, Laboratory, Medical, Personal Care, Pharmaceutical, Surgical Drains Material Certifications: USP Class VI
Values listed are typical and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for the application.
Special Order sizes may differ from these specifications.

Silcon® Med-X is a registered trademark of Newage® Industries, Inc.

Benefits

- Ultra-smooth inner bore reduces risk of particle entrapment
- Taste and odor free
- Withstands temperatures from -75°F to 350°F
- Meets FDA, 3-A, NSF and USP Class VI criteria

Pharmed® BPT Tubing

Part No.	Dimensions in Inches		Wall Thickness (inches)	Minimum Bend Radius (inches)	Max. Working Pressure		Vacuum Rating In. of Mercury		5 Ft.	10 Ft.	25* Ft.
	I.D.	O.D.			at 73°F (psi)**	at 180°F (psi)**	at 73°F	at 180°F			
PHT-020A	0.020	0.145	1/16	1/8	115	72	29.9	29.9	\$9.85	\$19.65	\$44.55
PHT-031A	1/32	5/32	1/16	1/8	78	49	29.9	29.9	11.65	23.30	52.85
PHT-062A	1/16	3/16	1/16	1/8	43	27	29.9	29.9	15.00	30.00	68.10
PHT-093A	3/32	7/32	1/16	1/4	30	19	29.9	29.9	17.80	35.55	80.75
PHT-125A	1/8	1/4	1/16	1/2	24	15	29.9	29.9	15.00	30.00	68.10
PHT-187A	3/16	5/16	1/16	5/8	17	10	29.9	27.0	15.35	30.65	69.55
PHT-250A	1/4	3/8	1/16	7/8	13	8	25.0	15.0	18.05	36.10	82.00
PHT-250B	1/4	1/2	1/8	3/4	24	15	29.9	29.9	31.85	63.65	144.55
PHT-375A	3/8	1/2	1/16	1-3/8	9	5	10.0	6.0	23.05	46.10	104.75
PHT-500A	1/2	3/4	1/8	1-1/8	10	8	25.0	15.0	36.70	73.35	166.70

*Documented biocompatibility to the ISO 10993 Standard & Meets USP Class VI, FDA and NSF criteria. Available on 25 Ft. only.

**Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.

Versilic® SPX-50 - High Strength Tubing

Part No.	Dimensions in Inches			Minimum Bend Radius	Maximum Working Pressure		10 Ft.	25 Ft.	50* Ft.
	I.D.	O.D.	Wall Thickness		at 73°F (psi)**	at 320°F (psi)**			
VST-031A	1/32	3/32	1/32	1/8	22	21	\$9.20	\$22.95	\$41.65
VST-062A	1/16	1/8	1/32	1/4	14	13	9.30	23.25	42.25
VST-093A	3/32	5/32	1/32	1/4	11	10	10.50	26.25	47.65
VST-125A	1/8	3/16	1/32	3/8	9	8	10.80	26.95	49.00
VST-187A	3/16	1/4	1/32	1	7	6	10.90	27.20	49.45
VST-250A	1/4	5/16	1/32	1-1/2	5	4	13.75	34.35	62.40
VST-375A	3/8	1/2	1/16	1-1/2	9	8	25.35	63.40	115.20
VST-500A	1/2	5/8	1/16	3	5	4	36.15	90.35	164.20

* Meets FDA, 3-A, NSF and USP Class VI criteria. Available 50 Ft. Only.

**Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.

Silcon® Med-X Silicone Tubing

Part No.	Dimensions in Inches			Working at 70°F (psi)	10 Ft.	25 Ft.	50* Ft.
	ID	OD	Wall Thickness				
SMD-030	0.030	0.160	0.065	Not Rated	\$39.15	\$75.65	\$106.80
SMD-063A	0.063	0.125	0.031	Not Rated	23.30	45.05	63.60
SMD-063B	0.063	0.188	0.063	Not Rated	32.55	62.90	88.80
SMD-063C	0.063	0.250	0.094	Not Rated	55.45	107.10	151.20
SMD-125A	0.125	0.188	0.032	Not Rated	36.10	69.70	98.40
SMD-125B	0.125	0.250	0.063	Not Rated	33.90	65.45	92.40
SMD-125C	0.125	0.313	0.094	Not Rated	54.55	105.40	148.80
SMD-188A	0.188	0.313	0.063	Not Rated	40.05	77.35	109.20
SMD-188B	0.188	0.375	0.094	Not Rated	47.10	90.95	128.40
SMD-250A	0.250	0.375	0.063	Not Rated	47.10	90.95	128.40
SMD-250B	0.250	0.438	0.094	Not Rated	74.35	143.65	202.80
SMD-250C	0.250	0.500	0.125	Not Rated	98.55	190.40	268.80
SMD-313A	0.313	0.438	0.063	Not Rated	59.40	114.75	162.00
SMD-313B	0.313	0.500	0.094	Not Rated	100.75	194.65	274.80
SMD-375A	0.375	0.500	0.063	Not Rated	66.00	127.50	180.00
SMD-375B	0.375	0.563	0.094	Not Rated	94.15	181.90	256.80
SMD-375C	0.375	0.625	0.125	Not Rated	104.70	202.30	285.60
SMD-500A	0.500	0.750	0.125	Not Rated	154.00	297.50	420.00
SMD-625A	0.625	0.875	0.125	Not Rated	179.95	347.65	490.80

*Meets USP Class VI Criteria. Available on 50 Ft. only



Polyvinylchloride (PVC) Flexible Clear Plastic Tubing

A general purpose, clear, and flexible PVC plastic tubing for transmission of fluids, gases, and some solids. Especially useful when light weight is necessary and rough handling could be encountered. Superior resistance to strong oxidizing and reducing acids, gasoline, oils in general, alcohol, and hydrocarbons. Durometer reading: Shore A, 68.



Clear Braided PVC Tubing

Our clear braided PVC tubing is produced from a crystal clear compound with FDA sanctioned ingredients for food contact. The polyester braid offers higher pressure capabilities than non-reinforced PVC tubing. Mirror smooth interior permits outstanding flow characteristics. It is generally unaffected by most oxidizers and reducing agents. Diluted acids and alkalies have little effect on the tubing. Petroleum products will harden tubing over time.

Clear Braided PVC Physical Properties

Hardness, Shore A	80
Tensile Strength, psi	2500
Elongation at Break, %	320
Brittle Temperature, °F	-50
Maximum Operating Temperature °F	175

Clear Braided PVC Tubing

Dimensions in Inches				Price		
Part No.	I.D.	O.D.	Wall	Working PSI	Burst PSI	10 Ft. 25 Ft. 100 Ft.
BRPH-02	1/8	0.315	0.095	465	1395	\$3.95 \$9.00 \$30.00
BRPH-03	3/16	0.394	0.103	315	945	4.50 10.20 34.00
BRPH-04	1/4	0.453	0.102	300	900	4.65 10.50 35.00
BRPH-05	5/16	0.531	0.093	280	840	6.20 14.10 47.00
BRPH-06	3/8	0.575	0.100	215	645	6.50 14.70 49.00
BRPH-08	1/2	0.728	0.114	215	645	9.00 20.40 68.00



PVC Vacuum Suction Hose

Spiral reinforced PVC suction hose is widely used throughout industry for both positive and negative pressure applications.

The spiral reinforcement is made from rigid PVC to resist impact, crushing and kinking. Formulated from clear FDA sanctioned ingredients, it is suitable for food and beverage

handling. The smooth interior permits maximum flow and is easily cleaned and sterilized. Vacuum rated to 28 in./Hg.

PVC Vacuum Suction Hose Physical Properties

Hardness, Shore A	65
Tensile Strength, psi	1900
Elongation at Break, %	440
Brittle Temperature, °F	-45
Maximum Operating Temperature °F	150

PVC Vacuum Suction Hose

Dimensions in Inches				Price/Ft.		
Part No.	I.D.	O.D.	Working PSI	Burst PSI	Bend radius	Price/Ft.
VSH-16	1	1 1/4	60	180	2	\$1.30
VSH-20	1 1/4	1 5/8	50	150	3	1.45
VSH-24	1 1/2	1 13/16	50	150	3	1.70
VSH-28	1 3/4	2 3/32	45	135	4	2.50
VSH-32	2	2 3/8	45	135	4	2.50

Tube Brushes

Part No.	Brush Diameter	Overall Length	Each	10	25
BRU-02	0.020"	3"	\$5.15	\$43.00	\$89.60
BRU-03	0.030"	3"	5.05	42.10	87.70
BRU-04	0.040"	4"	4.90	40.65	84.70
BRU-05	0.050"	4"	4.35	36.35	75.70
BRU-06	0.060"	6"	5.25	43.80	91.20
BRU-07	0.070"	6"	5.00	41.35	86.10
BRU-09	0.090"	6"	4.35	36.00	75.00
BRU-12	0.125"	6"	4.00	33.00	68.70
BRU-20	0.200"	6"	2.45	20.50	42.70
BRU-25	0.250"	6"	1.85	15.45	32.20



Ratcheting Flow Control Tube Clamps

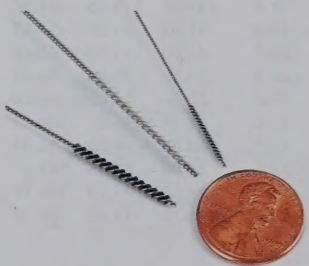
Easy one-hand, finger-controlled clamp reduces flow evenly through 12 positions* to complete closure.

Three sizes of tubing up to 3/4" O.D. Recommended for use with rubber, polyurethane, PVC and Viton® tubing; not usable with Nylon, Teflon or Polyethylene tubing.

Natural Acetal Copolymer Tube Clamp

Part No.	Capacity	Each	10	25	100
DC-1-4*	Up to 1/4	-	\$3.75	\$7.50	\$27.85
DC-2-8	1/4 to 1/2	-	5.55	12.50	44.40
DC-8-12	1/2 to 3/4	1.25	10.25	22.85	82.00

*DC-1- 4 has only one position.



Tube Brushes

A selection of small round Brushes are sized just right for cleaning small gauge tubes. Brush diameters: from the useful 1/4" size to the unbelievably tiny 0.020" which is the inside diameter of a 21 gauge hypodermic needle. The handles are twisted stainless steel. Brushes have nylon bristles.



Nylon-12 Tubing

- Very low moisture absorption: 1.4% maximum (at 73°F)
- Will not become brittle or swell because of water
- Excellent resistance to flexural fatigue, tube vibration, and movement
- Lightweight with excellent bend radii and pressure ratings
- Resists crushing, abrasion, and cracking
- Standard availability in metric sizes and colors

Physical Properties*

	Semi-Rigid Grade	Flexible Grade
Hardness, Shore D ± 5	72	63
Tensile Strength, psi	7790	7348
Elongation at Break, %	300	300
Brittle Temperature	<-90°F	<-90°F
Max. Operating Temp.**	212°F	212°F

*Values listed are typical and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for the application.

**Continuous Operating Temperature: 160°F.

Nylon-12 Flexible Grade Tubing

Dimension in Inches									
Part No.	I.D.	O.D.	Wall	Working at 70°F (psi)	Bend Radius	Color	10 Ft.	25 Ft.	100 Ft.
NFG-0212	0.058	0.125	0.034	830	0.313	Black	\$5.50	\$12.00	\$41.15
NFG-0219	0.058	0.125	0.034	830	0.313	Blue	5.50	12.00	41.15
NFG-0254	0.058	0.125	0.034	830	0.313	Green	5.50	12.00	41.15
NFG-0261	0.058	0.125	0.034	830	0.313	Natural	5.50	12.00	41.15
NFG-0289	0.058	0.125	0.034	830	0.313	Red	5.50	12.00	41.15
NFG-0527	0.117	0.188	0.035	600	0.375	Black	8.25	18.05	61.90
NFG-0534	0.117	0.188	0.035	600	0.375	Blue	8.25	18.05	61.90
NFG-0569	0.117	0.188	0.035	600	0.375	Green	8.25	18.05	61.90
NFG-0576	0.117	0.188	0.035	600	0.375	Natural	8.25	18.05	61.90
NFG-0604	0.117	0.188	0.035	600	0.375	Red	8.25	18.05	61.90
NFG-0625	0.117	0.188	0.035	600	0.375	Yellow	8.25	18.05	61.90
NFG-0842	0.170	0.250	0.040	450	0.5	Black	12.15	26.60	91.15
NFG-0849	0.170	0.250	0.040	450	0.5	Blue	12.15	26.60	91.15
NFG-0884	0.170	0.250	0.040	450	0.5	Green	12.15	26.60	91.15
NFG-0891	0.170	0.250	0.040	450	0.5	Natural	12.15	26.60	91.15
NFG-0919	0.170	0.250	0.040	450	0.5	Red	12.15	26.60	91.15
NFG-0940	0.170	0.250	0.040	450	0.5	Yellow	12.15	26.60	91.15
NFG-1472	0.250	0.375	0.063	450	1	Black	27.20	59.45	203.75
NFG-1479	0.250	0.375	0.063	450	1	Blue	27.20	59.45	203.75
NFG-1514	0.250	0.375	0.063	450	1	Green	27.20	59.45	203.75
NFG-1521	0.250	0.375	0.063	450	1	Natural	27.20	59.45	203.75
NFG-1549	0.250	0.375	0.063	450	1	Red	27.20	59.45	203.75
NFG-1570	0.250	0.375	0.063	450	1	Yellow	27.20	59.45	203.75
NFG-1787	0.375	0.500	0.063	330	1.5	Black	39.35	86.05	295.00
NFG-1794	0.375	0.500	0.063	330	1.5	Blue	39.35	86.05	295.00
NFG-1829	0.375	0.500	0.063	330	1.5	Green	39.35	86.05	295.00
NFG-1836	0.375	0.500	0.063	330	1.5	Natural	39.35	86.05	295.00
NFG-1864	0.375	0.500	0.063	330	1.5	Red	39.35	86.05	295.00
NFG-1885	0.375	0.500	0.063	330	1.5	Yellow	39.35	86.05	295.00
NFG-2102	0.500	0.625	0.063	265	2.5	Black	51.00	111.60	382.55
NFG-2151	0.500	0.625	0.063	265	2.5	Natural	51.00	111.60	382.55
NFG-2417	0.594	0.75	0.078	300	4	Black	76.15	166.55	571.00
NFG-2466	0.594	0.75	0.078	300	4	Natural	76.15	166.55	571.00
NFG-2732	0.813	1.000	0.094	230	7	Black	130.70	285.95	980.45
NFG-2781	0.813	1.000	0.094	230	7	Natural	130.70	285.95	980.45

Nylon-12 Semi-Rigid Grade Tubing

Dimension in Inches									
Part No.	I.D.	O.D.	Wall	Working at 70°F (psi)	Bend Radius	Color	10 Ft.	25 Ft.	100 Ft.
NSR-075A	0.075	0.125	0.025	1000	0.25	Black	\$8.05	\$16.80	\$53.75
NSR-075B	0.075	0.125	0.025	1000	0.25	Natural	8.05	16.80	53.75
NSR-095A	0.095	0.125	0.015	400	0.375	Black	7.05	14.65	46.90
NSR-095B	0.095	0.125	0.015	400	0.375	Natural	7.05	14.65	46.90
NSR-086A	0.086	0.156	0.035	1120	0.25	Black	12.80	26.65	85.20
NSR-086B	0.086	0.156	0.035	1120	0.25	Natural	12.80	26.65	85.20
NSR-106A	0.106	0.156	0.025	730	0.375	Black	9.30	19.35	61.85
NSR-106B	0.106	0.156	0.025	730	0.375	Natural	9.30	19.35	61.85
NSR-107A	0.107	0.188	0.040	980	0.375	Black	15.35	31.95	102.20
NSR-107B	0.107	0.188	0.040	980	0.375	Natural	15.35	31.95	102.20
NSR-137A	0.137	0.188	0.025	530	0.5	Black	11.95	24.90	79.60
NSR-137B	0.137	0.188	0.025	530	0.5	Natural	11.95	24.90	79.60
NSR-150A	0.150	0.250	0.050	1000	0.5	Black	24.95	52.00	166.40
NSR-150B	0.150	0.250	0.050	1000	0.5	Natural	24.95	52.00	166.40
NSR-190A	0.190	0.250	0.030	500	1	Black	16.15	33.60	107.50
NSR-190B	0.190	0.250	0.030	500	1	Natural	16.15	33.60	107.50
NSR-182A	0.182	0.313	0.065	1165	0.875	Black	40.25	83.85	268.30
NSR-182B	0.182	0.313	0.065	1165	0.875	Natural	40.25	83.85	268.30
NSR-242A	0.242	0.313	0.035	465	1.25	Black	24.45	50.90	162.90
NSR-242B	0.242	0.313	0.035	465	1.25	Natural	24.45	50.90	162.90
NSR-225A	0.225	0.375	0.075	1180	1	Black	54.75	114.05	364.90
NSR-225B	0.225	0.375	0.075	1180	1	Natural	54.75	114.05	364.90
NSR-295A	0.295	0.375	0.040	530	1.5	Black	33.80	70.45	225.45
NSR-295B	0.295	0.375	0.040	530	1.5	Natural	33.80	70.45	225.45

Nylon-12 Flexible Grade Metric Tubing

Dimensions in Millimeter									
Part No.	I.D.	O.D.	Wall	Working at 70°F (psi)	Bend Radius (mm)	Color	10 Ft.	25 Ft.	100 Ft.
NFM-0211	2.55	4.00	0.75	480	8	Black	\$9.80	\$20.40	\$65.30
NFM-0225	2.55	4.00	0.75	480	8	Blue	9.80	20.40	65.30
NFM-0253	2.55	4.00	0.75	480	8	Green	9.80	20.40	65.30
NFM-0267	2.55	4.00	0.75	480	8	Natural	9.80	20.40	65.30
NFM-0295	2.50	4.00	0.75	480	8	Red	9.80	20.40	65.30
NFM-0309	2.50	4.00	0.75	480	8	Yellow	9.80	20.40	65.30
NFM-0841	4.00	6.00	1.00	430	13	Black	16.90	35.25	112.75
NFM-0855	4.00	6.00	1.00	430	13	Blue	16.90	35.25	112.75
NFM-0883	4.00	6.00	1.00	430	13	Green	16.90	35.25	112.75
NFM-0897	4.00	6.00	1.00	430	13	Natural	16.90	35.25	112.75
NFM-0925	4.00	6.00	1.00	430	13	Red	16.90	35.25	112.75
NFM-0939	4.00	6.00	1.00	430	13	Yellow	16.90	35.25	112.75
NFM-1156	6.00	8.00	1.00	315	33	Black	24.00	50.05	160.15
NFM-1170	6.00	8.00	1.00	315	33	Blue	24.00	50.05	160.15
NFM-1198	6.00	8.00	1.00	315	33	Green	24.00	50.05	160.15
NFM-1212	6.00	8.00	1.00	315	33	Natural	24.00	50.05	160.15
NFM-1240	6.00	8.00	1.00	315	33	Red	24.00	50.05	160.15
NFM-1254	6.00	8.00	1.00	315	33	Yellow	24.00	50.05	160.15
NFM-1471	8.00	10.00	1.00	265	50	Black	32.35	67.45	215.75
NFM-1484	8.00	10.00	1.00	265	50	Blue	32.35	67.45	215.75
NFM-1513	8.00	10.00	1.00	265	50	Green	32.35	67.45	215.75
NFM-1527	8.00	10.00	1.00	265	50	Natural	32.35	67.45	215.75
NFM-1555	8.00	10.00	1.00	265	50	Red	32.35	67.45	215.75
NFM-1569	8.00	10.00	1.00	265	50	Yellow	32.35	67.45	215.75
NFM-1786	9.00	12.00	1.50	300	45	Black	54.75	114.05	364.90
NFM-1800	9.00	12.00	1.50	300	45	Blue	54.75	114.05	364.90
NFM-1828	9.00	12.00	1.50	300	45	Green	54.75	114.05	364.90
NFM-1842	9.00	12.00	1.50	300	45	Natural	54.75	114.05	364.90
NFM-1877	9.00	12.00	1.50	300	45	Red	54.75	114.05	364.90
NFM-1884	9.00	12.00	1.50	300	45	Yellow	54.75	114.05	364.90



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Viton® Tubing

- Made of 100% pure Viton®, a high performance synthetic rubber
- Excellent temperature resistance: 40°F to 400°F continuously; 600°F periodically
- Offers the widest range of fluid and chemical resistance of any commercial rubber

- Excellent resistance to oils, fuels, lubricants, and most mineral acids
- Also resistant to many aliphatic and aromatic hydrocarbons such as carbon tetrachloride, benzene, toluene, and xylene
- Excellent resistance to environmental exposure such as sunlight and ozone

Physical Properties**	Type A	Type B
Hardness, Shore A	75	60
Tensile Strength, psi	1600	1450
Elongation at Break, %	150	350
Brittle Temperature	-30°F	-40°F
Max. Operating Temp.	400°F	400°F

**Values listed are typical and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for the application.

Viton® Elastomeric Tubing - Type A

Part No.	Dimensions in Inches			Package		
	I.D.	O.D.	Wall	1 Ft.	10 Ft.	25 Ft.
VIT-032	1/32	3/32	1/32	\$5.95	\$49.50	\$98.75
VIT-032A	1/32	5/32	1/16	9.35	74.60	145.65
VIT-062	1/16	1/8	1/32	6.30	52.50	78.75
VIT-062A	1/16	3/16	1/16	9.10	72.65	141.90
VIT-062B	1/16	1/4	3/32	15.80	126.10	246.25
VIT-125	1/8	1/4	1/16	6.90	57.50	113.75
VIT-125A	1/8	5/16	3/32	20.25	161.95	316.25
VIT-125B	1/8	3/8	1/8	33.90	271.05	529.40
VIT-187	3/16	5/16	1/16	8.55	71.00	141.25
VIT-187A	3/16	7/16	1/8	40.40	322.90	630.65
VIT-250	1/4	3/8	1/16	11.20	93.50	189.25
VIT-250A	1/4	7/16	3/32	35.40	282.90	552.50
VIT-250B	1/4	1/2	1/8	52.70	421.45	823.15
VIT-250C	1/4	9/16	5/32	71.60	572.80	1118.75
VIT-375	3/8	1/2	1/16	16.55	138.00	275.00
VIT-375A	3/8	9/16	3/32	47.05	376.35	735.00
VIT-375B	3/8	5/8	1/8	66.00	527.70	1030.65
VIT-500	1/2	5/8	1/16	20.75	173.00	345.00
VIT-500A	1/2	3/4	1/8	82.15	657.00	1283.15
VIT-500B	1/2	7/8	3/16	150.20	1201.30	2346.25

Viton® Elastomeric Tubing - Type B

Part No.	Dimensions in Inches			Package		
	I.D.	O.D.	Wall	1 Ft.	10 Ft.	25 Ft.
VITB-032	1/32	3/32	1/32	\$12.10	\$96.65	\$188.75
VITB-032A	1/32	5/32	1/16	10.55	84.20	164.40
VITB-063	1/16	1/8	1/16	7.00	55.70	108.75
VITB-063A	1/16	3/16	1/16	10.25	81.95	160.00
VITB-063B	1/16	1/4	3/32	17.75	141.80	276.90
VITB-125	1/8	1/4	1/16	14.45	115.55	225.65
VITB-125A	1/8	5/16	3/32	22.60	180.80	353.15
VITB-125B	1/8	3/8	1/8	38.00	303.70	593.15
VITB-187	3/16	5/16	1/16	18.55	148.20	289.40
VITB-187A	3/16	7/16	1/8	46.40	370.90	724.40
VITB-250	1/4	3/8	1/16	22.90	183.05	357.50
VITB-250A	1/4	7/16	3/32	39.70	317.45	620.00
VITB-250B	1/4	1/2	1/8	59.00	472.00	921.90
VITB-250C	1/4	9/16	5/32	80.20	641.30	1252.50
VITB-375	3/8	1/2	1/16	35.60	284.80	556.25
VITB-375A	3/8	9/16	3/32	52.70	421.45	823.15
VITB-375B	3/8	5/8	1/8	73.85	590.75	1153.75
VITB-500	1/2	5/8	1/16	45.10	360.65	704.40
VITB-500A	1/2	3/4	1/8	92.10	736.65	1438.75
VITB-500B	1/2	7/8	3/16	168.35	1346.60	2630.00



Latex Tubing

Usually found in medical applications, this latex tubing also proves useful in a wide variety of other applications. The material withstands repeated sterilization by steam, EtO or gamma radiation and its natural translucency (natural amber) provides a semi-transparent view of the fluid flow. Smooth I.D. and O.D.'s are created by unique dipping process that removes any die lines and seams. The material has excellent elasticity and memory after repeated stretching and pulsating.

For orders greater than ten feet, tubing is supplied in at least ten foot lengths, (but not more than twenty feet, as feasible).

Caution: Some individuals may be allergic to Latex.

Physical Properties	
Hardness, Shore A±5	35
Tensile Strength (minimum), PSI	3500
Elongation at Break (minimum), %	750
Brittle Temperature,	-60°F
Maximum Operating Temperature,	180°F

Latex Tubing

Part No.	Dimensions in Inches			5 Ft.	10 Ft.	25 Ft.
	I.D.	O.D.	Wall			
LTR-2	1/16	1/8	1/32	\$4.15	\$5.90	\$11.75
LTR-4	1/8	1/4	1/16	5.40	7.70	15.50
LTR-5	3/16	5/16	1/16	5.60	8.00	16.00
LTR-6	1/4	3/8	1/16	6.45	9.20	18.50

Silicone Rubber Tubing

Silicone rubber is able to resist extreme temperature variances, from -150° to 500°F (-101° to 260°C), and has natural translucent color for visual flow monitoring. This tubing resists U.V. ozone gases, moisture and is temperature resilient. Silicone is stretchable, resistant to compression set, and is odorless, tasteless and inert.

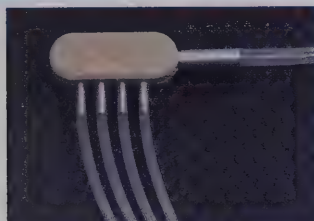
Technical Data

Silicone is extremely resistant to ozone and corona concentration over long time periods. The outstanding property of silicone is its great resistance to temperature extremes. This, in addition to good electrical properties, along with the ability to self-extinguish typically within 3-8 seconds, make silicone an excellent choice for appliance and computer applications. Contains no sulphur or other acid producing chemicals so it does not cause staining, corrosion or deterioration of other materials it contacts. Standard barbed fittings and lined hose clamps are recommended for most applications. Durometer reading: Shore A, 50.

Physical Properties	
Hardness, Shore A ± 5	50
Specific Gravity	1.14
Elongation at Break, %	375
Tensile Strength, psi	100
Brittle Temperature)	-100°F (-73°C
Max. Operating Temperature	.500°F (296°C)

Silicone Rubber Tubing

Part No.	Dimensions in Inches			10 Ft	25 Ft	100 Ft
	I.D.	O.D.	Wall			
SCT-01	1/16	3/16	1/16	\$29.00	\$47.35	\$120.40
SCT-02	1/8	1/4	1/16	24.75	40.85	91.40
SCT-03	3/16	5/16	1/16	29.60	48.40	125.80
SCT-04	1/4	3/8	1/16	31.00	51.60	134.40
SCT-06	3/8	1/2	1/16	36.90	61.30	155.90
SCT-08	1/2	5/8	1/16	42.60	71.00	178.45



PTFE (Polytetrafluoroethylene) Tubing

PTFE (Polytetrafluoroethylene) sometimes referred to as Teflon® is lightweight, semi-flexible, and is used for a variety of laboratory applications. Heat resistant to 500°F (260°C) continuously. Highly valued for its toughness and insulating qualities, as well as high dielectric strength over a wide range of frequencies. EtO and Autoclave sterilization.

Non-absorbent to water and unaffected by acids and alkalis. Should not be heated to temperatures above 752°F (400°C). Available in a convenient range of sizes from 30 gauge (0.012" I.D.) to 0 gauge (0.330" I.D.). Color: White Translucent Natural. USP Class VI, ASTM D 3295, UL-224/ UL-94VO

Physical Properties

Hardness, Shore D	55
Tensile Strength, psi 73°F	2500 - 4000
Elongation % 73°F	200-400
Continuous Use Temperature °F	500
Heat Deflection Temp. 66 psi °F	252
Specific Gravity	2.11 - 2.19
Melting Point °F	635 to 650

PTFE Standard Wall Tubing

Part No.	Nominal Gauge	Inside Diameter		Wall Thickness		10 Ft.	50 Ft.	100 Ft.
		Nominal	Min./Max.	Nominal	Tolerance			
SWTT-30	30	0.012	0.010/0.015	0.009		\$2.40	\$10.00	\$16.65
SWTT-28	28	0.015	0.013/0.018	0.009		2.00	8.25	13.75
SWTT-26	26	0.018	0.016/0.021	0.009	±0.002	2.50	10.20	16.95
SWTT-24	24	0.022	0.020/0.026	0.012		3.25	12.95	20.65
SWTT-22	22	0.028	0.026/0.032	0.012		3.85	15.45	25.75
SWTT-20	20	0.034	0.032/0.038	0.016		4.95	18.45	30.75
SWTT-19	19	0.038	0.036/0.042	0.016		5.55	22.05	35.75
SWTT-18	18	0.042	0.040/0.046	0.016		6.00	24.90	40.70
SWTT-17	17	0.047	0.045/0.052	0.016		6.90	27.50	45.80
SWTT-16	16	0.053	0.051/0.058	0.016		7.45	29.80	49.65
SWTT-15	15	0.059	0.057/0.065	0.016	±0.003	8.00	32.45	54.00
SWTT-14	14	0.066	0.064/0.072	0.016		8.80	35.20	58.25
SWTT-13	13	0.076	0.072/0.081	0.016		9.65	38.50	63.95
SWTT-12	12	0.085	0.081/0.091	0.016		10.75	42.35	70.50
SWTT-11	11	0.095	0.091/0.101	0.016		11.55	46.40	77.40
SWTT-10	10	0.106	0.102/0.112	0.016		13.15	54.30	90.50
SWTT-09	9	0.118	0.114/0.124	0.020		14.85	59.15	94.60
SWTT-08	8	0.133	0.129/0.139	0.020		16.45	66.00	109.35
SWTT-07	7	0.148	0.144/0.155	0.020		17.60	69.60	115.90
SWTT-06	6	0.166	0.162/0.174	0.020		18.45	76.85	128.05
SWTT-05	5	0.186	0.182/0.195	0.020	±0.004	20.25	84.30	140.55
SWTT-04	4	0.208	0.204/0.218	0.020		22.90	95.30	158.85
SWTT-03	3	0.234	0.229/0.244	0.020		25.80	107.40	179.05
SWTT-02	2	0.263	0.258/0.273	0.020		28.05	116.50	194.15
SWTT-01	1	0.294	0.289/0.305	0.020		32.20	134.20	223.70
SWTT-00	0	0.330	0.325/0.342	0.020		36.05	150.05	250.10

PTFE Light Weight Wall Tubing

Part No.	Nominal Gauge	Inside Diameter		Wall Thickness		10 Ft.	50 Ft.	100 Ft.
		Nominal	Min./Max.	Nominal	Tolerance			
STT-30	30	0.012	0.010/0.015	0.006		\$2.20	\$9.35	\$15.35
STT-28	28	0.015	0.013/0.018	0.006		2.35	9.95	16.05
STT-26	26	0.018	0.016/0.022	0.006		2.75	11.30	18.80
STT-24	24	0.022	0.020/0.027	0.006		2.50	10.85	17.45
STT-22	22	0.028	0.026/0.032	0.006		2.70	11.65	18.55
STT-20	20	0.034	0.032/0.040	0.006		3.40	14.25	23.65
STT-19	19	0.038	0.036/0.044	0.006		3.70	15.30	25.45
STT-18	18	0.042	0.040/0.049	0.006		3.85	15.95	26.40
STT-17	17	0.047	0.045/0.054	0.006	±0.002	3.85	15.95	26.55
STT-16	16	0.053	0.051/0.061	0.006		4.15	17.20	28.55
STT-15	15	0.059	0.057/0.067	0.006		4.40	18.55	30.65
STT-14	14	0.066	0.064/0.074	0.008		4.80	20.10	33.30
STT-13	13	0.076	0.072/0.082	0.008		5.50	23.05	38.45
STT-12	12	0.085	0.081/0.091	0.008		6.15	25.60	42.65
STT-11	11	0.095	0.091/0.101	0.008		6.50	26.95	44.70
STT-10	10	0.106	0.102/0.112	0.008		7.50	31.20	52.00
STT-09	9	0.118	0.114/0.124	0.008		8.10	33.65	56.10
STT-08	8	0.133	0.129/0.141	0.008		9.85	40.75	67.95
STT-07	7	0.148	0.144/0.158	0.008		11.00	45.90	76.75
STT-06	6	0.166	0.162/0.178	0.010		14.05	58.30	97.25
STT-05	5	0.186	0.182/0.195	0.010		15.70	65.20	108.65
STT-04	4	0.208	0.204/0.218	0.010	±0.003	17.35	72.05	119.85
STT-03	3	0.234	0.229/0.244	0.010		19.65	81.70	136.35
STT-02	2	0.263	0.258/0.273	0.010		21.95	90.90	151.55
STT-01	1	0.294	0.289/0.305	0.010		24.35	101.50	169.20
STT-00	0	0.330	0.325/0.342	0.012		27.40	114.15	190.10

PEEK Tubing (Polyetheretherketone) Semi-Flexible

PEEK Tubing is manufactured from a unique, high temperature engineering thermoplastic that is suitable for a wide range of demanding applications. Designed to withstand high pressure and temperature levels, PEEK tubing resists even the harshest environmental

conditions. Semi-flexible PEEK tubing is insoluble in virtually all organic and inorganic solvents as well as having dielectric properties. It can be cut to length, accepts pressure fittings and readily stands up to shock, abrasions and impacts. PEEK can be sterilized with Gamma, EtO and is Autoclavable.

Physical Properties

Density	0.0477 lbs/in ³
Rockwell Hardness	M99
Dielectric Strength	500 V/mil
Strength	(73°F) 13,300 psi
Flexural Strength	(73°F) 24,700 psi
Shear Strength	13,800 psi
Compressive Strength	17,100 psi
Melting Point	633°F (334°C)
Max. Continuous Use Temp.	482°F (286°C)

Peek (Polyetheretherketone) Tubing

Part No.	Dimensions in Inches					3 Ft.	10 Ft.	25 Ft.
	I.D.	I.D. Tol.	O.D.	O.D. Tol.	Wall			
PKT-006	0.006	±0.001	0.062	±0.001	0.028	\$10.45	\$28.95	\$60.25
PKT-010	0.010	±0.002	0.062	±0.003	0.026	8.20	21.70	43.25
PKT-020	0.020	±0.002	0.062	±0.001	0.021	8.30	23.05	47.85
PKT-030	0.030	±0.002	0.062	±0.003	0.016	9.45	26.25	54.60
PKT-040	0.040	±0.003	0.062	±0.001	0.011	9.45	26.25	54.60
PKT-062077	0.062	±0.002	0.077	±0.002	0.007	14.45	40.25	83.70
PKT-062125	0.062	±0.004	0.125	±0.008	0.032	21.45	59.65	124.30
PKT-093	0.093	±0.005	0.125	±0.005	0.016	22.80	63.05	131.40

Pyrex® 7740 Borosilicate Glass Tubing

Low coefficient of expansion and great mechanical strength are hallmarks of Pyrex® glass tubes. The sizes we carry can be bent after heating with a bunsen burner or propane blue flame torch.



Physical Properties

Softening point is °F(°C)	1508 (820)
Annealing Temperature °F(°C)	1049 (565)
Density (Specific Gravity)	2.33
Thermal Expansion Coefficient (0-300°C)	32 x 10 ⁻⁷

Pyrex® Glass Tubing

Part No.	Outside Dimensions		Wall		6"	12"
	Diameter	Tolerance	Thickness	Tolerance		
PYT-08/04	4.0mm	0.3mm	0.8mm	0.1mm	\$1.00	\$1.25
PYT-08/05	5.0mm	0.3mm	0.8mm	0.1mm	1.15	1.50
PYT-10/06	6.0mm	0.3mm	1.0mm	0.1mm	1.40	1.75
PYT-10/08	8.0mm	0.3mm	1.0mm	0.1mm	1.65	1.95
PYT-10/09	9.0mm	0.3mm	1.0mm	0.1mm	2.00	2.15
PYT-12/13	13.0mm	0.3mm	1.2mm	0.1mm	2.15	2.40

Polyimide USP Class VI Tubing

When thin walls, tight tolerances and high strength are required, polyimide is the material of choice. Polyimide is in the select group of "super polymers" and is now available in micro and miniature tubing sizes from Small Parts.

Our tubing has a thermal rating of -452°F (269°C) to 700 (371°C) for continuous use application with a dielectric constant of 3.4. This material is considered a benchmark for polymers in electrical insulation applications. This tubing exhibits exceptional dimensional stability and has very high burst pressure ratings. Excellent column strength and high stiffness has proven to provide good push and torque properties making polyimide tubing an excellent choice as a substrate for catheters that are guided through the body's vascular system.

Other uses include high strength temperature and chemical resistant push rod tubes, and miniature structural matrices. This tubing can be steam, gamma or EtO sterilized and has excellent chemical resistance. Polyimide tubing can be bonded with cyanoacrylates, UV and room temperature cure epoxies.



Stainless Steel and Nickel Annealed Capillary Tubing

Capillary tubing provides a heavy wall and relatively small inside diameter frequently required for transmission of pressure changes over great distances by means of gas or liquid, especially in the instrument and control fields and other high pressure applications.

Stainless Steel Type 316 - Straight is seamless, annealed soft temper tubing. It is a good choice for parts and assemblies that require high corrosion resistance and must also withstand temperatures up to 1600°F (871°C). It is available in 12", 24" and 36" lengths.

Stainless Steel Type 316- Coiled is the same tubing as above, but is supplied in coiled lengths of 10, 50 and 100 feet.

Nickel 200 Grade A - Coiled is an annealed and commercially pure (99%) wrought nickel. It maintains much of its strength at high temperatures and stays tough and ductile at low temperatures with excellent resistance to many corrosive environments. Nickel 200 is normally limited to service at temperatures below 600°F (315°C).

Stainless Steel Type 316 Straight Tubing

Part No.	Dimensions in Inches			Hydrostatic Pressure Ratings psi	12"	24"	36"
	O.D.	I.D.	Wall (1)				
CTSXX-6205	0.062	0.005	0.028	11,442	\$7.25	\$11.60	\$15.55
CTSXX-6210	0.062	0.01	0.026	11,155	7.25	11.60	15.55
CTSXX-6215	0.062	0.015	0.237	10,684	7.25	11.60	15.55
CTSXX-6220	0.062	0.02	0.021	10,041	6.95	11.15	15.10
CTSXX-6230	0.062	0.02	0.021	10,041	5.85	9.35	12.25

(1) Nominal wall thickness. For reference only.

Stainless Steel Type 316 Coiled Tubing

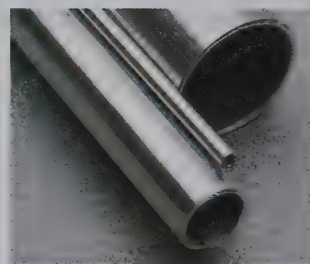
Part No.	Dimensions in Inches			Hydrostatic Pressure Ratings psi	5 Ft.	10 Ft.	50 Ft.	100 Ft.
	O.D.	I.D.	Wall (1)					
CTXX-6210	0.062	0.01	0.026	11,155	\$19.25	\$31.95	\$130.50	\$226.00
CTXX-6220	0.062	0.02	0.021	10,041	16.75	27.95	120.00	216.00
CTXX-6230	0.062	0.03	0.016	8,292	19.25	31.95	130.50	226.00

(1) Nominal wall thickness. For reference only.

Nickel 200 Grade A 99% Pure Coiled Tubing

Part No.	Dimensions in Inches			Hydrostatic Pressure Ratings psi	12 Ft.	24" Ft.	36" Ft.
	O.D.	I.D.	Wall (1)				
CTNI-3220	0.032	0.02	0.006	4,396	\$24.45	\$40.65	\$169.25
CTNI-6220	0.062	0.02	0.021	7,140	28.10	46.80	169.25

(1) Nominal wall thickness. For reference only.



Stainless Steel (Annealed) Type 304

A general purpose tubing with industrial finish, ASTM A-269.

Stainless Steel Annealed Tubing Type 304 - ASTM A-269

Part No.	Dimensions in Inches			Wall Thickness	Tol.	6"	12"	24"	Suffix 36"
	Nominal Size	Tol.	Thickness						
GPTX-22/02	1/8	.003	.020	0.003	\$3.05	\$5.05	\$8.40	\$11.50	
GPTX-35/03	3/16	.004	.035	0.005	3.95	6.50	10.40	14.20	
GPTX-35/04	1/4	.004	.035	0.005	4.55	7.55	12.60	15.70	
GPTX-35/05	5/16	.004	.035	0.005	5.55	9.25	14.75	18.85	
GPTX-35/06	3/8	.004	.035	0.005	5.65	9.45	15.70	19.60	
GPTX-35/08	1/2	.004	.035	0.005	5.65	9.45	15.70	19.60	
GPTX-35/10	5/8	.005	.035	0.005	7.30	12.15	19.45	26.25	
GPTX-35/12	3/4	.005	.035	0.005	7.40	12.30	19.65	26.50	
GPTX-49/16	1	.005	.049	0.005	7.75	12.95	20.75	28.00	

Single-Edge Bladeholder
RB-RK5.....\$2.00

Polyimide Standard Wall Tubing

Part No.	Dimensions in Inches					Max psi Standard Wall	2-12"	1-30"
	I.D.	Tol.	O.D. Reference Dimension	Std. Wall	Wall Tol.			
SWPT-005	0.005	±0.0002	0.007	0.000	±0.00019	3078	\$12.50	\$15.50
SWPT-008	0.009	±0.0003	0.010	0.000	±0.00019	1854	12.50	15.50
SWPT-012	0.013	±0.0003	0.015	0.001	±0.00025	1755	12.50	15.50
SWPT-014	0.014	±0.0003	0.016	0.001	±0.00025	1572	12.50	15.50
SWPT-017	0.018	±0.0004	0.020	0.001	±0.00025	1266	12.50	15.50
SWPT-022	0.023	±0.0004	0.025	0.001	±0.00025	1015	12.50	15.50
SWPT-028	0.029	±0.0005	0.031	0.001	±0.00025	813	12.50	15.50
SWPT-035	0.036	±0.0005	0.038	0.001	±0.00025	650	12.50	15.50
SWPT-040	0.040	±0.0005	0.042	0.001	±0.00025	581	12.50	15.50
SWPT-045	0.045	±0.0005	0.047	0.001	±0.00025	518	12.50	15.50
SWPT-050	0.051	±0.0005	0.053	0.001	±0.00031	576	12.50	15.50
SWPT-057	0.057	±0.0006	0.060	0.001	±0.00031	514	12.50	15.50
SWPT-064	0.064	±0.0006	0.067	0.001	±0.00031	441	12.50	15.50
SWPT-072	0.072	±0.0008	0.075	0.001	±0.00031	409	12.50	15.50
SWPT-080	0.081	±0.0008	0.083	0.001	±0.00031	366	12.50	15.50
SWPT-088	0.088	±0.0009	0.093	0.002	±0.00113	598	17.50	21.75
SWPT-105	0.105	±0.0010	0.110	0.003	±0.00125	558	17.50	21.75
SWPT-112	0.112	±0.0011	0.118	0.002	±0.00138	575	17.50	21.75
SWPT-123	0.123	±0.0012	0.129	0.002	±0.00138	525	17.50	21.75
SWPT-137	0.137	±0.0014	0.143	0.003	±0.00150	514	17.50	21.75
SWPT-160	0.160	±0.0016	0.166	0.003	±0.00150	442	17.50	21.75

Polyimide Triple Wall Tubing

Part No.	I.D.	Tol.	Dimensions in Inches			Max psi Triple Wall	2-12"	1-30"
			O.D. Reference Dimension	Triple Wall	Wall Tol.			
TWPT-005	0.005	±0.0002	0.009	0.002	±0.00056	8320	\$12.50	\$15.50
TWPT-008	0.008	±0.0003	0.013	0.002	±0.00056	6135	12.50	15.50
TWPT-012	0.012	±0.0003	0.018	0.003	±0.00075	5907	12.50	15.50
TWPT-014	0.014	±0.0003	0.02	0.003	±0.00075	5459	12.50	15.50
TWPT-017	0.017	±0.0004	0.023	0.003	±0.00075	4634	12.50	15.50
TWPT-022	0.022	±0.0004	0.028	0.003	±0.00075	3878	12.50	15.50
TWPT-028	0.028	±0.0005	0.034	0.003	±0.00075	3213	12.50	15.50
TWPT-035	0.035	±0.0005	0.041	0.003	±0.00075	2641	12.50	15.50
TWPT-040	0.040	±0.0005	0.046	0.003	±0.00075	2387	12.50	15.50
TWPT-045	0.045	±0.0005	0.051	0.003	±0.00075	2151	12.50	15.50
TWPT-050	0.050	±0.0005	0.058	0.004	±0.00094	2369	12.50	15.50
TWPT-057	0.057	±0.0006	0.064	0.004	±0.00094	2135	12.50	15.50
TWPT-064	0.064	±0.0006	0.071	0.004	±0.00094	1854	12.50	15.50
TWPT-072	0.072	±0.0008	0.079	0.004	±0.00094	1730	12.50	15.50
TWPT-080	0.080	±0.0008	0.088	0.004	±0.00094	1555	12.50	15.50

Stainless Steel Single-Edge Razor Blades

Dryfilm coated industrial quality blades for critical cuts. Often used in pathology labs, medical device manufacturing, and in film and food industries, these stainless steel blades cut cleanly, are highly corrosion resistant, and are coated with DuPont™ Dryfilm, the active ingredient of which is PTFE (Polytetrafluoroethylene).

This coating adds high lubricity and non-stick qualities and enhances the metal's natural resistance to chemicals and other sources of corrosion. Aluminum backed, individually packaged 0.009" blades have protective paper for safe handling and storage.

Part No.	10 pcs	25 pcs	50 pcs	100 pcs
RBSX	\$3.00	\$5.75	\$9.50	\$18.95

Stainless Steel 304 Hypodermic Tubing

This hard-tempered, small-bore tubing is used to make spacers, needles, guide wires, cannulas, capillary tubing, etc. and is widely applied in the medical, mechanical, electronic, chemical and aeronautical fields. Commonly called "seamless" because of its cosmetic appearance, 304 Hypodermic Tubing is actually welded and drawn. Full hard, but can be annealed in an inert atmosphere. The annealing point is 1950°F (1065°C). The dimensional tolerance is uniform over the piece length. Bright finish.

Hypodermic Tubing gauges are based on the Birmingham Gauge, also known as Stub's Iron Wire Gauge.



Stainless Steel 304 - Regular Wall

Dimensions in Inches											
Part No.	Gauge	O.D.	I.D.	Wall		Tolerance		12"	24"	36"	
				(1)		O.D.	I.D.				
HTX-36R**	36	0.004	0.002	0.001		±.00025	±.0005	\$36.75	\$64.30	\$82.65	
HTX-35R	35	0.006	0.003	0.002				28.50	47.50	68.25	
HTX-34R**	34	0.007	0.003	0.002		±.00025	±.0005	17.50	35.00	52.50	
HTX-33R	33	0.008	0.004	0.002				7.65	12.70	18.15	
HTX-32R	32	0.009	0.004	0.003		+ .0005 - .0000	+ .0010 - .0005	6.05	10.05	14.35	
HTX-31R	33	0.010	0.005	0.003				4.55	6.90	9.85	
HTX-30R	30	0.012	0.006	0.003				3.60	5.90	7.40	
HTX-29R	29	0.013	0.007	0.003				3.20	5.25	6.60	
HTX-28R	28	0.014	0.007	0.004				3.00	4.95	6.25	
HTX-27R	27	0.016	0.008	0.004				3.00	4.95	6.25	
HTX-26R	26	0.018	0.010	0.004				2.75	4.55	5.70	
HTX-25R	25	0.020	0.010	0.005				2.75	4.55	5.70	
HTX-24R	24	0.022	0.012	0.005				2.75	4.55	5.70	
HTX-23R	23	0.025	0.013	0.006				3.05	5.05	1.80	
HTX-22R	22	0.028	0.016	0.006				3.05	5.05	6.35	
HTX-21 ½R	21½	0.030	0.023	0.004				3.75	6.15	7.75	
HTX-21R	21	0.032	0.020	0.006				3.05	5.05	6.35	
HTX-20R	20	0.036	0.023	0.006			+ .0015 - .0000	3.30	5.45	6.85	
HTX-19R	19	0.042	0.027	0.008		±.0005	±.0015	3.40	5.60	7.05	
HTX-18R	18	0.050	0.033	0.009				3.75	6.15	7.75	
HTX-051R*	n/s	0.051	0.038	0.007				4.10	6.80	8.55	
HTX-17R	17	0.058	0.042	0.008				3.80	6.30	7.90	
HTX-16R	16	0.065	0.047	0.009				3.85	6.35	7.95	
HTX-15R	15	0.072	0.054	0.009				3.90	6.40	8.05	
HTX-14R	14	0.083	0.063	0.010				4.05	6.70	8.40	
HTX-13½R	13½	0.089	0.071	0.009				4.20	6.95	8.75	
HTX-13R	13	0.095	0.071	0.012				4.25	7.00	8.80	
HTX-12½R	12 ½	0.100	0.082	0.009				4.45	7.35	9.25	
HTX-12R	12	0.109	0.085	0.012		±.002		4.60	7.60	9.55	
HTX-11 ½R	11½	0.115	0.095	0.010			4.70	7.80	9.80		
HTX-11R	11	0.120	0.094	0.013			4.80	7.90	9.90		
HTX-10R	10	0.134	0.106	0.014			4.85	8.00	10.05		
HTX-143R*	n/s	0.143	0.114	0.015			5.20	8.60	10.80		
HTX-09R	9	0.148	0.118	0.015	±.001		4.95	8.20	10.30		
HTX-08R	8	0.165	0.135	0.015			4.95	8.20	10.30		
HTX-175R*	n/s	0.175	0.145	0.015			5.45	9.00	11.30		
HTX-07R	7	0.180	0.150	0.015			±.003		5.20	8.55	10.75
HTX-06½R	6 ½	0.188	0.168	0.010				5.20	8.60	10.80	
HTX-06R	6	0.203	0.173	0.015		5.45		8.95	11.25		
HTX-216R*	n/s	0.216	0.178	0.019		5.45		9.00	11.30		
HTX-05R	5	0.220	0.189	0.016		5.70		9.40	11.80		
HTX-04R	4	0.238	0.198	0.020		5.70	9.40	11.80			
HTX-246R*	n/s	0.246	0.210	0.018				5.70	9.40	11.80	

(1) Nominal wall thickness. For reference only.

* Not a standard gauge.

**New Gauge Size(s) Available.

Stainless Steel 304 - Heavy Wall

Dimensions in Inches										
Part No.	Gauge	O.D.	I.D.	Wall	Tolerance		12"	24"	36"	
				(1)	O.D.	I.D.				
HTX-22H	22	0.028	0.011	0.008	±.002		\$8.20	\$13.65	\$17.15	
HTX-21H	21	0.032	0.016	0.008			8.20	13.65	17.15	
HTX-20H	20	0.036	0.018	0.009			8.20	13.65	17.15	
HTX-19H	19	0.042	0.022	0.010			8.20	13.65	17.15	
HTX-18H	18	0.050	0.030	0.010			8.30	13.85	17.40	
HTX-17H	17	0.059	0.039	0.010	±.0005		8.60	14.35	18.00	
HTX-16H	16	0.065	0.033	0.016			10.15	16.90	21.15	
HTX-14H	14	0.083	0.049	0.017			10.60	17.70	22.15	
HTX-13H	13	0.095	0.063	0.016		±.0015	10.70	17.95	22.55	
HTX-106H	N/S	0.106	0.075	0.015			11.70	19.50	24.40	
HTX-12H	12	0.109	0.077	0.016			10.95	18.30	22.90	
HTX-11H	11	0.012	0.087	0.016			11.70	19.50	24.40	
HTX-10½H	10½	0.125	0.092	0.016			11.70	19.50	24.40	

(1) Nominal wall thickness. For reference only.

Stainless Steel 304 - Thin Wall

Dimensions in Inches										
Part No.	Gauge	O.D.	I.D.	Wall (1)	Tolerance		12"	24"	36"	
					O.D.	I.D.				
HTX-32T	32	0.009	0.005	0.002	±.0005	±.0005	-	\$24.00	\$31.50	
HTX-30T	30	0.012	0.007	0.002			\$9.25	16.85	23.00	
HTX-29T	29	0.013	0.008	0.002			15.00	24.00	31.50	
HTX-28T	28	0.014	0.010	0.002	±.0005	±.001	4.05	6.70	8.35	
HTX-27T	27	0.016	0.012	0.002			4.05	6.70	8.35	
HTX-26T	26	0.018	0.012	0.002			15.00	24.00	31.50	
HTX-25T	25	0.020	0.012	0.004	±.0005	±.0005	2.40	4.05	4.95	
HTX-24T	24	0.022	0.014	0.004			2.40	4.05	4.95	
HTX-23T	23	0.025	0.017	0.004			2.40	4.05	4.95	
HTX-22T	22	0.028	0.020	0.004	+.0005 -.0000	+.001 -.0005	2.40	4.05	4.95	
HTX-21T	21	0.032	0.023	0.005			2.40	4.15	5.00	
HTX-20T	20	0.036	0.026	0.005			2.80	4.80	5.80	
HTX-19T	19	0.042	0.032	0.005	±.0005		2.85	4.85	5.85	
HTX-18T	18	0.050	0.038	0.006			3.15	5.20	6.50	
HTX-17T	17	0.058	0.047	0.005			3.25	5.40	6.75	
HTX-16T	16	0.065	0.053	0.006	±.0005		3.25	5.40	6.75	
HTX-15T	15	0.072	0.060	0.006			3.25	5.40	6.75	
HTX-14T	14	0.083	0.067	0.008			4.05	6.70	8.35	
HTX-13T	13	0.095	0.077	0.009	+.0015 -.0005		4.70	7.80	9.75	
HTX-12T	12	0.109	0.091	0.009			4.70	7.80	9.75	
HTX-11T	11	0.120	0.100	0.010			4.70	7.80	9.75	
HTX-10T	10	0.134	0.114	0.010	±.001		4.70	7.80	9.75	
HTX-09T	9	0.148	0.128	0.010			5.50	9.15	11.45	
HTX-08T	8	0.165	0.145	0.010			5.50	9.15	11.45	
HTX-07T	7	0.180	0.160	0.010	±.002		5.55	9.20	11.50	
HTX-06T	6	0.203	0.183	0.010			5.65	9.45	11.80	

(1) Nominal wall thickness. For reference only.

Assortments

Part No. 24" Lengths

HTX-9400 One length each size HTX-06T through HTX-25T, HTX-27T and HTX-28T \$133.25

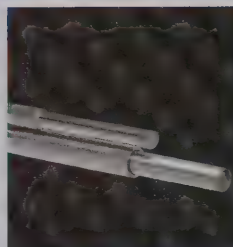
Stainless Steel 304 - Extra Thin Wall

Dimensions in Inches										
Part No.	Gauge	O.D.	I.D.	Wall (1)	Tolerance		12"	24"	36"	
					O.D.	I.D.				
HTX-34X	34	0.007	0.006	0.003	+ .0005 - .0000	±.0005	\$11.05	\$19.30	\$24.85	
HTX-33X	33	0.008	0.007	0.003			10.40	18.20	23.45	
HTX-30X	30	0.012	0.009	0.003			5.60	9.80	12.60	
HTX-29X	29	0.013	0.010	0.003			5.45	9.55	12.55	
HTX-28X	28	0.014	0.011	0.003			5.35	9.35	12.00	
HTX-27X	27	0.016	0.010	0.003			5.15	9.00	11.55	
HTX-26X	26	0.018	0.014	0.003			5.15	9.00	11.55	
HTX-25X	25	0.020	0.014	0.003			5.25	8.25	10.50	
HTX-24X	24	0.022	0.016	0.003			±.001	12.00	21.00	27.00
HTX-23X	23	0.025	0.020	0.003			4.85	7.95	10.00	
HTX-22X	22	0.028	0.022	0.003	12.00	21.00	27.00			
HTX-21X	21	0.032	0.025	0.004	±.0005	4.70	7.80	9.75		
HTX-20X	20	0.036	0.028	0.004	±.001	12.00	21.00	27.00		
HTX-19X	19	0.042	0.035	0.004	4.70	7.80	9.75			
HTX-18X	18	0.050	0.042	0.004	±.0005	±.0001	5.50	9.15	11.45	
HTX-17X	17	0.058	0.050	0.004			5.50	9.15	11.45	
HTX-16X	16	0.065	0.056	0.005			5.65	9.40	11.75	
HTX-15X	15	0.072	0.063	0.004			4.55	8.05	10.35	
HTX-14X	14	0.083	0.072	0.006	±.001	±.001	5.65	9.40	11.75	
HTX-13X	13	0.095	0.085	0.005		5.65	9.40	11.75		
HTX-12X	12	0.109	0.095	0.005		5.50	9.65	12.35		
HTX-11X	11	0.120	0.104	0.006		±.002	5.65	9.85	12.75	
HTX-10X	10	0.134	0.118	0.006		5.85	10.35	13.25		
HTX-09X	9	0.148	0.135	0.007		5.90	9.80	12.25		



Stainless Steel 316 Regular Wall and Thin Wall Hypodermic Tubing

Our 316 stainless steel hypodermic tubing is molybdenum bearing austenitic steel containing a higher percentage of nickel and a smaller percentage of chromium compared to 304. The higher corrosion resistance of 316 stainless vs. 304 stainless steel is particularly useful when working with phosphoric and acetic acids.



Stainless Steel 304 Guide Wire Assembly

Hypodermic Tubing and Guide Wire

These assemblies can be used in a variety of ways. Together, they can be used as an actuator or a push rod assembly. The wire can be used as a tube stiffener or as a stylet for removing debris from the matching tube. Each assembly consists of a 24" length of 304 welded and drawn stainless

steel hypodermic tubing, and a 30" length of 304 "gun barrel straight" stainless steel guide wire. The inserted wire is approximately 0.001" smaller than the inside diameter of the tubing.

Stainless Steel 316 - Regular Wall

Part No.	Gauge	Dimensions in Inches		Wall (1)	Tolerance		6"	12"	24"	36"
		O.D.	I.D.		O.D.	I.D.				
HTXX-30R	30	0.012	0.006	0.003			\$3.05	\$5.20	\$8.65	\$10.85
HTXX-29R	29	0.013	0.007	0.003			3.05	5.20	8.65	10.85
HTXX-28R	28	0.014	0.007	0.004			3.05	5.20	8.65	10.85
HTXX-27R	27	0.016	0.008	0.004			2.95	4.95	8.20	10.25
HTXX-26R	26	0.018	0.010	0.004			2.95	4.95	8.20	10.25
HTXX-25R	25	0.020	0.010	0.005	+ .0005	+ .0005	2.95	4.95	8.20	10.25
HTXX-24R	24	0.022	0.012	0.005	- .0000	- .0000	2.95	4.95	8.20	10.25
HTXX-23R	23	0.025	0.013	0.006			3.05	5.05	8.40	10.50
HTXX-22R	22	0.028	0.016	0.006			3.05	5.05	8.40	10.50
HTXX-21R	21	0.032	0.020	0.006			3.05	5.05	8.40	10.50
HTXX-20R	20	0.036	0.023	0.006		± .0015	3.20	5.30	8.85	11.05
HTXX-19R	19	0.042	0.027	0.008			3.20	4.90	8.85	11.05
HTXX-18-1/2R	18-1/2	0.046	0.033	0.007			3.75	6.55	10.75	12.95
HTXX-18R	18	0.05	0.033	0.009			3.75	6.55	10.75	12.95
HTXX-17R	17	0.058	0.042	0.008	± .0005	± .0015	3.75	6.55	10.75	12.95
HTXX-63*	N/S	0.063	0.021	0.021			4.75	7.95	13.20	16.50
HTXX-16R	16	0.065	0.047	0.009			3.85	6.35	10.60	13.25
HTXX-15R	15	0.072	0.054	0.009			3.90	6.50	10.80	13.50
HTXX-14R	14	0.083	0.063	0.010			4.00	6.70	11.20	13.95
HTXX-13R	13	0.095	0.071	0.012			4.25	7.10	11.80	14.75
HTXX-12R	12	0.109	0.085	0.012		± .002	4.80	8.00	13.35	16.65
HTXX-11R	11	0.120	0.094	0.013			4.40	8.65	14.40	18.00
HTXX-10R	10	0.134	0.106	0.014	± .001		5.30	8.75	14.60	18.25
HTXX-9R	9	0.148	0.118	0.015		± .003	5.35	8.90	14.80	18.50
HTXX-8R	8	0.165	0.135	0.015			5.50	9.15	15.20	19.00
HTXX-7R	7	0.180	0.150	0.015		± .002	6.15	10.20	17.00	21.25
HTXX-6R	6	0.203	0.173	0.015			6.35	10.55	17.60	22.00

(1) Nominal wall thickness. For reference only.

* Not a standard gauge.

Assortments

Part No.	24" Lengths	No. of Pieces	Price
HTXX-9000	One length each size HTXX-18R through HTXX-30R	14	\$109.65
HTXX-9100	One length each size HTXX-6R through HTXX-17R	13	157.75

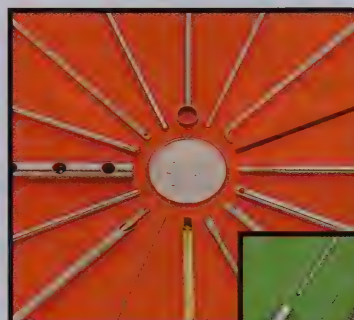
Stainless Steel 316 - Thin Wall

Part No.	Gauge	Dimensions in Inches		Wall (1)	Tolerance		6"	12"	24"	36"
		O.D.	I.D.		O.D.	I.D.				
HTXX-28T	28	0.014	0.010	0.002			\$4.55	\$7.50	\$12.45	\$15.65
HTXX-27T	27	0.016	0.012	0.002	± .0005	+ .001	3.40	5.60	9.35	11.75
HTXX-26T	26	0.018	0.012	0.003		- .000	3.40	5.60	9.35	11.75
HTXX-25T	25	0.020	0.012	0.004		+ .001	3.40	5.60	9.35	11.75
HTXX-24T	24	0.022	0.014	0.004		- .000	3.40	5.60	9.35	11.75
HTXX-23T	23	0.025	0.017	0.004	+ .0005		3.40	5.60	9.35	11.75
HTXX-22T	22	0.028	0.020	0.004	- .0000	+ .001	3.40	5.60	9.35	11.75
HTXX-21T	21	0.032	0.023	0.005		- .000	4.05	6.65	11.10	13.95
HTXX-20T	20	0.036	0.026	0.005			4.05	6.65	11.10	13.95
HTXX-19T	19	0.042	0.032	0.005			4.05	6.65	11.10	13.95
HTXX-18T	18	0.050	0.038	0.006			4.35	7.25	12.00	15.10
HTXX-16T	16	0.065	0.053	0.006			4.70	7.80	12.95	16.25
HTXX-15T	15	0.072	0.060	0.006	± .0005		4.70	7.80	12.95	16.25
HTXX-14T	14	0.083	0.067	0.008		+ .0015	5.30	8.80	14.65	18.40
HTXX-12T	12	0.109	0.091	0.009		- .0005	5.70	9.45	15.75	19.75
HTXX-10T	10	0.134	0.114	0.010			5.85	9.65	16.10	20.20
HTXX-09T	9	0.148	0.128	0.010			5.90	9.80	16.30	21.95
HTXX-08T	8	0.165	0.145	0.010		± .001	7.00	11.60	19.30	24.20
HTXX-07T	7	0.180	0.160	0.010			7.45	12.35	20.60	25.80
HTXX-06T	6	0.203	0.183	0.010		± .002	7.80	12.9	21.50	26.95

(1) Nominal Wall Thickness. For reference only.

Precision Cutting Services

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for Pricing and Delivery Information



Small Parts, Inc. offers custom cutting services for Tubing and Wire to lengths as small as 0.020" with standard tolerance of 0.0050" to 0.001"

Exact • On Time • Everytime



Encapsulated Component After Heat Application

Heat Shrink Tubing

FEP Shrink Ratio 1.3:1

FEP (Fluorinated Ethylene-propylene)

The amazing nature of this heat shrinkable FEP (Fluorinated Ethylene-Propylene) Tubing suggests countless possibilities for its application and use. This remarkable product will shrink rapidly over inserted objects upon exposure to moderate heat. Soldered joints, parts, components and fittings of plastic, metal or wood that could not previously be protected because of the high temperature required for shrinkage can now have a transparent surface of Teflon® with a continuous service temperature of 400°F (204°C).

Shrinkage will occur completely at exposure to 350°F (177°C) with partial shrinkage beginning as low as 200°F (93°C). Suggested for connecting metal, glass or plastic tubes of similar or dissimilar diameters in low pressure applications. FEP's chemical resistance and dielectric properties are equal to PTFE (Polytetrafluoroethylene). Shrink ratio is 1.3:1.

Physical Properties

Tensile Strength, PSI (73) °F	3000 - 4000
Elongation, % (73)°F	30
Continuous Use Temperature °F	400
Heat Deflection Temp. 66 PSI °F	158
Specific Gravity	2.12 - 2.17
Melting Point °F	487 - 540

FEP - Shrink Ratio 1.3:1

Dimensions in Inches								
Part No.	Nominal Gauge	Minimum Expanded I.D.	Recovered Dimensions Max. I.D.	Wall	Wall Tol.	12"	24"	48"
SMT-24	24	0.031	0.027	0.008		\$1.40	\$2.25	\$3.65
SMT-22	22	0.036	0.032	0.008		1.45	2.35	3.80
SMT-20	20	0.045	0.039	0.008		1.50	2.50	3.95
SMT-18	18	0.06	0.049	0.008	±.002	1.60	2.65	4.20
SMT-16	16	0.075	0.061	0.009		1.60	2.65	4.20
SMT-14	14	0.092	0.072	0.009		1.65	2.70	4.30
SMT-12	12	0.115	0.089	0.009		1.65	2.75	4.40
SMT-10	10	0.141	0.114	0.010		1.75	2.95	4.75
SMT-09	9	0.158	0.124	0.010	±.003	2.60	4.25	6.80
SMT-08	8	0.180	0.143	0.010		2.70	4.45	7.15
SMT-07	7	0.197	0.158	0.011		3.20	5.30	8.45
SMT-06	6	0.225	0.180	0.011		3.35	5.55	8.85
SMT-05	5	0.248	0.198	0.011		3.50	5.85	9.30
SMT-04	4	0.290	0.226	0.011	±.004	3.70	6.15	9.85
SMT-03	3	0.310	0.249	0.011		4.30	7.15	10.95
SMT-02	2	0.365	0.280	0.012		4.60	7.65	11.10
SMT-01	1	0.400	0.311	0.012		4.90	8.20	13.10
SMT-00	0	0.440	0.349	0.012		5.45	9.10	14.50

Assortments (Sizes Not Marked)

Part No.	Tubing Length	Description	No. of Pieces	Price Each
SMT-9000	6"	Four tubing lengths of each gauge size SMT-24 Through SMT-09	36	\$21.95
SMT-9100	6"	Four tubing lengths of each gauge size SMT-20 Through SMT-00	36	68.15
SMT-9200	12"	Two tubing lengths of each gauge size SMT-24 Through SMT-09	18	27.10
SMT-9300	12"	Two tubing lengths of each gauge size SMT-08 Through SMT-00	18	64.30

Shrink/Melt Heat Shrink Tubing

PTFE/FEP



Constructed of an outer layer of heat shrink PTFE (Polytetrafluoroethylene) and an inner layer of FEP (Fluorinated Ethylene-Propylene), the outer tubing shrinks while the inner layer melts when heat is applied. The shrink tubing allows for a tight fit around the part while the near-solid encapsulation can withstand moisture and the severe stresses of pull or vibration.

PTFE begins to shrink at 650°F (343°C).

The mandrel or part to be covered by the Heat shrink tubing must be able to withstand this temperature range.



Heat Shrink Teflon Tubing

Heat Shrink Tubing

PTFE Heat Shrink Ratio 2:1 and 4:1

PTFE (Polytetrafluoroethylene)

Our PTFE Heat Shrink 2:1 and 4:1 Tubing has a shrink range of 650°F ±25°F (343°C ±10°C). PTFE (Polytetrafluoroethylene) goes into the "gel" state (amorphous from crystalline) at approximately 625°F (330°C). PTFE begins to shrink at 650°F (343°C). The mandrel or part to be covered by the heat shrink tubing must be able to withstand this temperature range. Color: Clear.

PTFE — Heat Shrink Ratio 2:1

Dimension in Inches								
Part No.	Nominal Gauge	Minimum Expanded I.D.	Recovered Dimensions Max. I.D.	Wall	Wall Tol.	12"	24"	48"
SM2T-30	30	0.034	0.015	0.006		\$2.20	\$3.65	\$6.05
SM2T-28	28	0.038	0.018	0.006		2.15	3.50	5.85
SM2T-26	26	0.046	0.022	0.006		2.10	3.45	5.70
SM2T-24	24	0.050	0.025	0.006		2.10	3.45	5.70
SM2T-22	22	0.055	0.031	0.006		2.15	3.60	5.95
SM2T-20	20	0.060	0.038	0.006		2.20	3.70	6.15
SM2T-18	18	0.076	0.046	0.006	±.002	2.35	3.95	6.55
SM2T-16	16	0.093	0.057	0.006		2.50	4.05	6.75
SM2T-14	14	0.120	0.072	0.008		2.55	4.20	6.95
SM2T-12	12	0.150	0.089	0.008		2.80	4.70	7.75
SM2T-10	10	0.191	0.110	0.008		3.30	5.45	9.15
SM2T-09	9	0.205	0.122	0.008		4.30	7.15	11.95
SM2T-08	8	0.240	0.139	0.008		5.60	9.30	15.45
SM2T-07	7	0.270	0.154	0.008		5.95	9.90	16.45
SM2T-06	6	0.302	0.172	0.010		6.45	10.75	17.90
SM2T-05	5	0.320	0.192	0.010		7.10	11.75	19.65
SM2T-04	4	0.370	0.214	0.010	±.003	7.65	12.75	21.30
SM2T-03	3	0.390	0.241	0.010		8.35	13.95	23.20
SM2T-02	2	0.430	0.270	0.010		9.15	15.25	25.35
SM2T-01	1	0.450	0.301	0.010		9.95	16.55	27.55
SM2T-00	00	0.470	0.347	0.012		11.05	18.45	30.75

PTFE — Heat Shrink Ratio 4:1

Dimensions in Inches							
	Minimum Expanded	Recovered Dimensions					
Part No.	I.D.	Max. I.D.	Wall	Wall Tol.	12"	24"	48"
SM4T-0078	0.078	0.025	0.009	±.002	\$4.50	\$7.50	\$12.50
SM4T-0125	0.125	0.037	0.010		3.10	5.15	8.60
SM4T-0187	0.187	0.050	0.012		3.25	5.40	8.95
SM4T-0250	0.250	0.063	0.012		4.00	6.70	11.15
SM4T-0312	0.312	0.078	0.012	±.003	4.40	7.35	12.25
SM4T-0375	0.375	0.096	0.012		5.00	8.35	13.35
SM4T-0438	0.438	0.112	0.012		6.70	11.20	17.95
SM4T-0500	0.500	0.144	0.015		7.70	12.82	21.40
SM4T-0562	0.562	0.155	0.015	±.004	9.55	15.95	26.55
SM4T-0625	0.625	0.178	0.015		10.45	17.40	28.95
SM4T-0687	0.687	0.198	0.015		11.85	19.70	32.80
SM4T-0750	0.750	0.224	0.015		12.70	21.25	35.35



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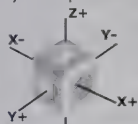
See Part No. HG-3002 LCD Steinel Heat Gun.

PTFE / FEP — Shrink/Melt Heat Shrink Ratio 2:1

Dimensions in Inches							
	Recovered Dimension						
	As Supplied	I.D. Will Shrink	Wall Thickness				
Part No.	I.D. Min.	To At Least	(Nominal)	6"	12"	24"	48"
SMDT-036	0.036	0.000	0.023	\$2.15	\$3.60	\$6.05	\$9.85
SMDT-060	0.060	0.000	0.028	3.05	5.00	8.35	14.05
SMDT-130	0.130	0.000	0.032	3.85	6.45	10.75	17.90
SMDT-160	0.160	0.000	0.032	4.50	7.60	12.65	20.95
SMDT-190	0.190	0.062	0.035	6.80	11.40	19.00	31.65
SMDT-250	0.250	0.125	0.035	7.25	12.40	20.65	34.10
SMDT-350	0.350	0.190	0.035	10.30	17.20	28.65	47.80
SMDT-450	0.450	0.312	0.055	17.35	28.90	48.15	80.30
SMDT-700	0.700	0.440	0.055	24.50	40.70	67.80	113.05

Luer Connectors

If you need a custom component for a new application, or simply want to experiment with different configurations before selecting a specific design, our solvent bondable white ABS components are the perfect solution. Combine junction blocks, luers, threaded or barbed components to create fittings or build manifolds for your specific applications. Acetone makes an ideal solvent for this product.



ABS Bondable Junction Blocks

Part No.	X Axis		Y Axis		Z Axis		10	25	100
	X+	X-	Y+	Y-	Z+	Z-			
VPLF-BDJ01-81	Female	Female					\$10.00	\$18.75	\$62.50
VPLF-BDJ02-81			Female		Female		10.00	18.75	62.50
VPLF-BDJ03-81			Female		Female	Female	10.00	18.75	62.50
VPLF-BDJ04-81	Female	Female	Female	Female			10.00	18.75	62.50
VPLF-BDJ05-81	Female		Female		Female		10.00	18.75	62.50
VPLF-BDJ06-81	Female		Female		Female	Female	10.00	18.75	62.50
VPLF-BDJ07-81	Female	Female	Female	Female	Female		10.00	18.75	62.50
VPLF-BDJ08-81	Female	Female	Female	Female	Female	Female	10.00	18.75	62.50
VPLF-BDJ09-81	Male	Female	Female		Female	Female	10.00	18.75	62.50
VPLF-BDJ10-81	Male	Female	Female	Female	Female	Female	10.00	18.75	62.50
VPLF-BDJ11-81	Male	Female	Female	Female			10.00	18.75	62.50
VPLF-BDJ12-81	Male	Female	Female				10.00	18.75	62.50
VPLF-BDJ13-81	Male	Female	Female		Female		10.00	18.75	62.50
VPLF-BDJ14-81	Male	Female					10.00	18.75	62.50
VPLF-BDJ15-81	Female	Female					10.00	18.75	62.50
VPLF-BDJ16-81	Female	Female		Female ^a			10.00	18.75	62.50
VPLF-BDJ18-81	Male	Female ^b	Female			Female	10.00	18.75	62.50
VPLF-BDJ20-81	Male	Female ^b	Female	Female			10.00	18.75	62.50
VPLF-BDJ21-81	Male	Female ^b	Female				10.00	18.75	62.50
VPLF-BDJ22-81	Male	Female ^b	Female		Female		10.00	18.75	62.50

a. For non-flow manifold

b. For use with BDMD (Bondable Mounting Strap)

ABS Bondable Luer Fittings

Part No	Description	10	25	100
VPLF-BDMRP-81	Plug	\$5.60	\$10.50	\$35.00
VPLF-BDMFTLL-81	Female Luer Thread Style	12.40	23.25	77.50
VPLF-BDMMTL-81	Male Luer	12.40	23.25	77.50

ABS Bondable Thread Fittings

		Dimensions in Inches			
Part No.	Description	Across Flats	10	25	100
VPLF-BDF16-81	1/16-27 NPT	5/16	\$11.60	\$21.75	\$72.50
VPLF-BDM16-81	1/16-27 NPT	5/16	11.60	21.75	72.50
VPLF-BDFS-81	1/4-28 UNF	5/16	11.60	21.75	72.50
VPLF-BDMS-81	1/4-28 UNF	5/16	11.60	21.75	72.50
VPLF-BDF18-81	1/8-27 NPT	7/16	11.60	21.75	72.50
VPLF-BDM18-81	1/8-27 NPT	7/16	11.60	21.75	72.50
VPLF-BDMK-81	Special Taper Thread	10-32 UNF	1/4	6.80	12.75
VPLF-BDMX-81		10-32 UNF	1/4	6.80	12.75
VPLF-BDMD-81	Mounting Strap	1/4 28 UNF	-	6.40	12.00
				40.00	

ABS Bondable Barb Fittings

Part No.	Dimensions in Inches			Style	10	25	100
	Fits ID Tubing	Barb Series					
VPLF-BDMR210-81	1/16	1.5mm	200	Straight	\$5.60	\$10.50	\$35.00
VPLF-BDMR220-81	3/32	2.25mm	200	Straight	5.60	10.50	35.00
VPLF-BDMR230-81	1/8	3mm	200	Straight	5.60	10.50	35.00
VPLF-BDMR240-81	5/32	4mm	200	Straight	5.60	10.50	35.00
VPLF-BDMR410-81	1/16	1.5mm	400	Straight	5.60	10.50	35.00
VPLF-BDMR420-81	3/32	2.25mm	400	Straight	5.60	10.50	35.00
VPLF-BDMR430-81	1/8	3mm	400	Straight	5.60	10.50	35.00
VPLF-BDMR445-81	0.170	4.25mm	400	Straight	5.60	10.50	35.00
VPLF-BDML210-81	1/16	1.5mm	200	Elbow	8.80	16.50	55.00
VPLF-BDML220-81	3/32	2.25mm	200	Elbow	8.80	16.50	55.00
VPLF-BDML230-81	1/8	3mm	200	Elbow	11.60	21.75	72.50
VPLF-BDML410-81	1/16	1.5mm	400	Elbow	8.80	16.50	55.00
VPLF-BDML420-81	3/32	2.25mm	400	Elbow	8.80	16.50	55.00
VPLF-BDML430-81	1/8	3mm	400	Elbow	11.60	21.75	72.50
VPLF-BDMT210-81	1/16	1.5mm	200	Tee	11.60	21.75	72.50
VPLF-BDMT220-81	3/32	2.25mm	200	Tee	11.60	21.75	72.50
VPLF-BDMT230-81	1/8	3mm	200	Tee	12.80	24.00	80.00
VPLF-BDMT410-81	1/16	1.5mm	400	Tee	11.60	21.75	72.50
VPLF-BDMT420-81	3/32	2.25mm	400	Tee	11.60	21.75	72.50
VPLF-BDMT430-81	1/8	3mm	400	Tee	12.80	24.00	80.00



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For a complete selection of
Barbed Fittings.

Male Luer Products

Description	Color	Nylon	10	25	Polypropylene	10	25
Male to Female Thread Style with Stationary Lock Ring	White (Nylon)	VPLF-LC23-1	\$5.60	\$10.50	VPLF-LC23-6	\$6.40	\$12.00
Male Luer Integrated Lock Ring to Female Luer	White (Nylon)	VPLF-LC34-1	6.40	12.00	VPLF-LC34-6	7.20	13.50
Male to Female Thread Style with Rotating Lock Ring	White (Nylon)	VPLF-LC78-1	5.60	10.50	VPLF-LC78-6	6.80	12.75
Male to Female Thread Style Elbow	White (Nylon)	VPLF-LE87-1	13.60	25.50	VPLF-LE87-6	15.60	29.25
Male Luer Integrated Lock Ring to Female Luer Plug	White (Nylon)	VPLF-LP34-1	6.40	12.00	VPLF-LP34-6	7.20	13.50
Male Luer Integrated Lock Ring Plug	White (Nylon)	VPLF-LP4-1	2.80	5.25	VPLF-LP4-6	3.20	6.00
F X F X M Luer Tee	White (Nylon)	VPLF-LT878-1	15.60	29.25	VPLF-LT878-6	18.00	33.75
M X M X F Luer Tee	White (Nylon)	VPLF-LT787-1	15.60	29.25	VPLF-LT787-6	18.00	33.75
Male Luer Lock Ring	White (Nylon)	VPLF-MLLR-1	5.60	10.50	VPLF-MLLR-6	6.40	12.00
Male Luer Lock Ring	Black (Nylon)	VPLF-MLLR-2	5.60	10.50			
Male Luer Lock Ring	Blue (Nylon)	VPLF-MLLR-5	5.60	10.50			
Male Luer Coupler	White (Nylon)	VPLF-MLRLC-1	5.60	10.50	VPLF-MLRLC-6	6.40	12.00
Male Luer Plug Rotating Locking Ring	White (Nylon)	VPLF-MLRLP-1	5.60	10.50	VPLF-MLRLP-6	6.40	12.00
Male Luer Plug Stationary Locking Ring	White (Nylon)	VPLF-MLSPL-1	5.60	10.50	VPLF-MLSPL-6	6.40	12.00
Rotating Male Luer Lock Ring	White (Nylon)	VPLF-RMLLR-1	5.60	10.50	VPLF-RMLLR-6	6.40	12.00
Rotating Male Luer Lock Ring	Black (Nylon)	VPLF-RMLLR-2	5.60	10.50			
Rotating Male Luer Lock Ring	Blue (Nylon)	VPLF-RMLLR-5	5.60	10.50			
Male Luer Lock Ring Vented Plug	White (Nylon)	VPLF-VLP4-1	2.80	5.25	VPLF-VLP4-6	3.20	6.00

Male Slip (for Rotating Lock Ring) Luer to Barb

Description	Barb Series	Nylon	10	25	100	Polypropylene	10	25	100
Male Luer to 1/8" Elbow	200	VPLF-LE7230-1	\$13.60	\$25.50	\$76.50	VPLF-MLRL004-6	\$4.80	\$9.00	\$27.00
Male Luer to 1/16"	500	VPLF-MLRL004-1	4.00	7.50	22.50	VPLF-MLRL007-6	4.80	9.00	27.00
Male Luer to 3/32"	500	VPLF-MLRL007-1	4.00	7.50	22.50	VPLF-MLRL013-6	4.80	9.00	27.00
Male Luer to 1/8"	500	VPLF-MLRL013-1	4.00	7.50	22.50	VPLF-MLRL025-6	5.60	10.50	31.50
Male Luer to 5/32"	500	VPLF-MLRL025-1	4.80	9.00	27.00	VPLF-MLRL035-6	5.60	10.50	31.50
Male Luer to 3/16"	500	VPLF-MLRL035-1	4.80	9.00	27.00	VPLF-MLRL055-6	5.60	10.50	31.50
Male Luer to 1/4"	500	VPLF-MLRL055-1	4.80	9.00	27.00	VPLF-LE7230-6	15.60	29.25	87.75

Male Slip (for Stationary Lock Ring) Luer to Barb

Description	Barb Series	Nylon	10	25	100	Polypropylene	10	25	100
Male Luer to 1/16"	500	VPLF-MSLS004-1	\$4.00	\$7.50	\$22.50	VPLF-MSLS004-6	\$4.80	\$9.00	\$27.00
Male Luer to 3/32"	500	VPLF-MSLS007-1	4.00	7.50	22.50	VPLF-MSLS007-6	4.80	9.00	27.00
Male Luer to 1/8"	500	VPLF-MSLS013-1	4.00	7.50	22.50	VPLF-MSLS013-6	4.80	9.00	27.00
Male Luer to 5/32"	500	VPLF-MSLS025-1	4.80	9.00	27.00	VPLF-MSLS025-6	5.60	10.50	31.50
Male Luer to 3/16"	500	VPLF-MSLS035-1	4.80	9.00	27.00	VPLF-MSLS035-6	5.60	10.50	31.50
Male Luer to 1/4"	500	VPLF-MSLS055-1	4.80	9.00	27.00	VPLF-MSLS055-6	5.60	10.50	31.50

Male Slip Luer to Barb

Description	Barb Series	Nylon	10	25	100	Polypropylene	10	25	100
Male Luer to 1/16"	500	VPLF-MSL004-1	\$4.00	\$7.50	\$22.50	VPLF-MSL004-6	\$4.80	\$9.00	\$27.00
Male Luer to 3/32"	500	VPLF-MSL007-1	4.00	7.50	22.50	VPLF-MSL007-6	4.80	9.00	27.00
Male Luer to 1/8"	500	VPLF-MSL013-1	4.00	7.50	22.50	VPLF-MSL013-6	4.80	9.00	27.00
Male Luer to 5/32"	500	VPLF-MSL025-1	4.80	9.00	27.00	VPLF-MSL025-6	5.60	10.50	31.50
Male Luer to 3/16"	500	VPLF-MSL035-1	4.80	9.00	27.00	VPLF-MSL035-6	5.60	10.50	31.50
Male Luer to 1/4"	500	VPLF-MSL055-1	4.80	9.00	27.00	VPLF-MSL055-6	5.60	10.50	31.50

Female Luer Connectors Lug Style

Description	Barb Series	White Nylon	10	25	100	Polypropylene	10	25	100
Female Luer Coupler	200	VPLF-FTLC-1	\$4.90	\$10.50	\$31.50	VPLF-FTLC-6	\$5.60	\$12.00	\$36.00
Female Luer to 1/16"	200	VPLF-FTL210-1	4.20	9.00	27.00	VPLF-FTL210-6	4.90	10.50	31.50
Female Luer to 1/8"	200	VPLF-FTL230-1	4.20	9.00	27.00	VPLF-FTL230-6	4.90	10.50	31.50
Female Luer to 3/32"	200	VPLF-FTL220-1	4.20	9.00	27.00	VPLF-FTL220-6	4.90	10.50	31.50
Female Luer to 5/32"	200	VPLF-FTL240-1	4.90	10.50	31.50	VPLF-FTL240-6	5.60	12.00	36.00
Female Luer Cap with Tether Loop	-	VPLF-FTLP-1	4.20	9.00	27.00	VPLF-FTLP-6	4.90	10.50	31.50
Female Luer to 1/16"	Classic	VPLF-FTL10-1	4.20	9.00	27.00	VPLF-FTL10-6	4.90	10.50	31.50
Female Luer to 1/8"	Classic	VPLF-FTL30-1	4.20	9.00	27.00	VPLF-FTL30-6	4.90	10.50	31.50
Female Luer to 3/32"	Classic	VPLF-FTL20-1	4.20	9.00	27.00	VPLF-FTL20-6	4.90	10.50	31.50
Female Luer Elbows	-	VPLF-FTLE-1	10.15	21.75	65.25	VPLF-FTLE-6	11.90	25.50	76.50
Female Luer Tee	-	VPLF-FTLT-1	10.15	21.75	65.25	VPLF-FTLT-6	11.90	25.50	76.50

Female Luer Connectors Thread Style

Description	White Nylon	10	25	100	Polypropylene	10	25	100
Female Luer Cap	VPLF-FTLLP-1	\$4.20	\$9.00	\$27.00	VPLF-FTLLP-6	\$4.90	\$10.50	\$31.50
Female Luer Coupler	VPLF-FTLLC-1	4.90	10.50	31.50	VPLF-FTLLC-6	5.60	12.00	36.00
Female Luer Elbow	VPLF-FTLLE-1	7.70	16.50	49.50	VPLF-FTLLE-6	10.15	21.75	65.25
Female Luer to 1/16" Barb	VPLF-FTLLSB004-1	3.50	7.50	22.50	VPLF-FTLLSB004-6	4.20	9.00	27.00
Female Luer to 1/8" Barb	VPLF-FTLLSB013-1	3.50	7.50	22.50	VPLF-FTLLSB013-6	4.20	9.00	27.00
Female Luer to 3/32" Barb	VPLF-FTLLSB007-1	3.50	7.50	22.50	VPLF-FTLLSB007-6	4.20	9.00	27.00

Snap Luer Lock Ring

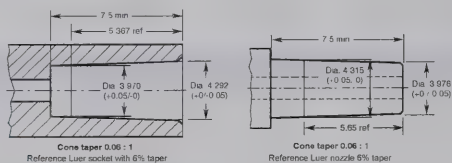
Color	Nylon	10	25	100
Black	VPLF-FSLLR-2	\$3.50	\$7.50	\$22.50
Blue	VPLF-FSLLR-5	3.50	7.50	22.50
White	VPLF-FSLLR-1	3.50	7.50	22.50
Natural Polypropylene	VPLF-FSLLR-6	3.85	8.25	24.75



Stainless Steel Type 316

The concept for these adapters was developed by a German instrument maker named Luer. His name has become synonymous with this unique design. The Luer taper allows the rapid connection of medical devices and tubing in a mechanically secure and leakproof (liquid) manner. However, the mated parts disconnect

easily when desired. Used on most hypodermic needles, type 316 stainless steel Luer connectors are truly superior fittings suited for the most demanding medical and laboratory applications. The barbed fitting can be used with many types of tubing, such as Teflon®, polyethylene, PVC, etc. Luer blanks give you the added option of customizing the fitting to meet your specific mounting requirements. Outside diameters of barbs have a tolerance of ± 0.005 "



Male Luer Connectors

These products feature a standard Luer taper at one end and a barbed tubing mount on the other.

Male Luer Connector



Dimensions in Inches

Part No.	Fits Tubing Inside Diameter	Barb O.D.	Each	10
LCXX-M093	3/32	0.105	\$11.40	\$95.00
LCXX-M125	1/8	0.145	11.40	95.00
LCXX-M187	3/16	0.205	10.10	84.00
LCXX-M250	1/4	0.260	12.95	102.80

Female Luer Connectors

A non-barbed fitting with the standard internal Luer taper. The through-hole is 0.060".

Female Luer



Can be modified to fit Tubing

Part No.	I.D.	Each	10
LCXX-FBL0	Gauges 4 to 33	\$10.25	\$82.00

Luer Lock Connectors

These fittings are threaded for a more secure connection and added torque for seal disconnect.

Male Luer Lock



Dimensions in Inches

Part No.	Fits Tubing I.D.	Barb O.D.	Each	10
LCXX-MLL093	3/32	0.105	\$11.85	\$94.50
LCXX-MLL125	1/8	0.145	12.45	99.50
LCXX-MLL187	3/16	0.205	13.05	104.50
LCXX-MLL250	1/4	0.260	13.55	109.00

Female Luer Lock



Dimensions in Inches

Part No.	Fits Tubing I.D.	Barb O.D.	Each	10
LCXX-FLL093	3/32	0.105	\$12.15	\$101.00
LCXX-FLL125	1/8	0.145	9.25	74.00
LCXX-FLL187	3/16	0.205	9.60	77.00
LCXX-FLL250	1/4	0.260	9.95	80.50

Bulkhead Luer Adapters

These adaptors allow the rigid and secure attachment of the male or female Luer fitting to equipment panels and bulkheads. Each fitting includes a stainless steel lockwasher and a 1/4-32 panel nut.

Male Bulkhead Luer Adapters



Dimensions in Inches

Part No.	Fits Tubing I.D.	Thread Size	Barb O.D.	Each	10
LCXX-MB093	3/32	1/4-32	0.105	\$31.20	\$249.50
LCXX-MB125	1/8	1/4-32	0.145	32.30	258.50

Female Bulkhead Luer Lock



Dimensions in Inches

Part No.	Fits Tubing I.D.	Thread Size	Barb O.D.	Each	10
LCXX-FB093	3/32	1/4-32	0.105	\$30.55	\$244.50
LCXX-FB125	1/8	1/4-32	0.145	39.85	332.00

Double Luer Locks

Lend versatility to a Luer Connector-based fluid transfer system. They also can be used as extensions.

Double Luer Lock



LCXX-FDL0



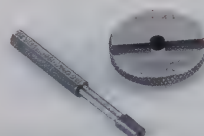
LCXX-MDL0



LCXX-MFO

Part No.	Fits	Each	10
LCXX-FDL0	2 Male Luer Locks	\$12.25	\$102.00
LCXX-MDL0	2 Female Luer Locks	12.60	105.00
LCXX-MFO	1 Male & Female Luer Lock	12.05	96.50

Luer Taper Gauges ISO 594/1 1986E



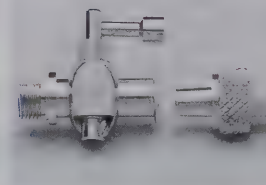
Male and female Luer taper gauges are manufactured in accordance with the latest ISO 594/1 1986E Standards, and are delivered with unique serial numbers and certification of calibration, for use in prototype or production quality control.

- **Male Luer taper gauge** tests semi-rigid male fittings. It is made from ground, hardened Stainless Steel Type 440.
- **Female Luer taper gauge** is suitable for testing female fittings in both semi-rigid and rigid materials. The contact area is made from Tungsten Carbide.

Other test and measurement gauges for Luer compliance with ISO, ANSI/HIMA MD70.1 are available.

LTG-02F	Male Luer Taper Gauge	\$805.95
LTG-01M	Female Luer Taper Gauge	855.00

Stainless Steel Type 304 Luer Stopcock



Stainless steel type 304 Luer Stopcocks, in conjunction with other connectors allow the user to build a piping system that makes control of liquids an effortless task. The threaded end has a 0.085" through-hole Thread size: 1/4 -32. Total Fitting Length: 1.170".

LXSK-1	Luer Stopcock	\$79.80
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Miniature Stainless Steel Tubing Connectors Hypodermic Sizes

Miniature stainless steel tubing connectors provide a simple and inexpensive solution to creating small bore flexible tubing circuits. Our proprietary design provides a durable and reusable connector that presents a stainless steel surface to the liquid or gas within the circuit. Type 304 stainless steel hypodermic tubing is brazed into the type 303 stainless steel body providing a combination high-temperature high-pressure connector. The body of the connector is engraved with the hypodermic tubing size for easy identification. Connectors can be sterilized using most conventional methods.

Tubing connectors are available to fit instrumentation sized plastic tubing with inside diameters of 1/32", 3/64", 1/16", 3/32", 9/64" and 13/64".

Miniature Stainless Steel Tubing Connectors

Part No.	Gauge	Dimensions in Inches		A	B Tol ± 0.03	C Tol ± 0.05	D Tol ± 0.10	Each	10
		Tube O.D. / I.D.							
STC-20/2	20	.0355/.023	1/4	0.085	0.250	0.750	\$11.20	\$100.45	
STC-20/3	20	.0355/.023	1/4	0.085	0.250	0.750	12.30	110.30	
STC-20/4	20	.0355/.023	1/4	0.085	0.250	0.750	13.70	100.45	
STC-18/2	18	.050/.033	1/4	0.090	0.280	0.810	10.40	93.25	
STC-18/3	18	.050/.033	1/4	0.090	0.280	0.810	11.50	103.15	
STC-18/4	18	.050/.033	1/4	0.090	0.280	0.810	12.60	112.95	
STC-16/2	16	.065/.047	5/16	0.110	0.312	0.930	11.20	100.45	
STC-16/3	16	.065/.047	5/16	0.110	0.312	0.930	12.30	110.30	
STC-16/4	16	.065/.047	5/16	0.110	0.312	0.930	13.70	122.85	
STC-13/2	13	.095/.071	3/8	0.140	0.438	1.250	11.40	102.20	
STC-13/3	13	.095/.071	3/8	0.140	0.438	1.250	12.60	112.00	
STC-13/4	13	.095/.071	3/8	0.140	0.438	1.250	14.00	125.55	
STC-09/2	9	.148/.118	7/16	0.210	0.540	1.600	11.50	103.10	
STC-09/3	9	.148/.118	7/16	0.210	0.540	1.600	12.50	112.00	
STC-09/4	9	.148/.118	7/16	0.210	0.540	1.600	14.30	128.25	
STC-06/2	6	.203/.173	1/2	0.280	0.590	1.680	11.50	103.15	
STC-06/3	6	.203/.173	1/2	0.280	0.590	1.680	12.90	115.70	
STC-06/4	6	.203/.173	1/2	0.280	0.590	1.680	12.90	115.70	

Miniature Stainless Steel 60° "Y" Tubing Connectors

Part No.	Gauge	Dimensions in Inches		A	B Tol ± 0.03	C Tol ± 0.015	Each	10
		Tube O.D. / I.D.						
STCY-27	27	.016/.008	7/32	0.065	0.190	\$36.10	\$303.80	
STCY-25	25	.020/.010	7/32	0.065	0.190	35.70	300.45	
STCY-23	23	.025/.013	7/32	0.065	0.190	33.20	279.40	
STCY-22	22	.028/.016	7/32	0.065	0.190	33.20	279.40	
STCY-20	20	.035/.023	1/4	0.085	0.250	18.20	153.15	
STCY-18	18	.050/.033	5/16	0.095	0.280	18.20	153.15	

Miniature Stainless Steel Tubing Reducers

Part No.	Inlet Gauge	Dimensions in Inches		Outlet Gauge	O.D./I.D.	A	B Tol ± 0.03	J Tol ± 0.05	K Tol ± 0.05	Each	10
		O.D./I.D.									
STCR-16/20	16	.065/.047	20	.0355/.023	5/16	0.110	0.250	0.312	\$13.90	\$125.95	
STCR-16/18	16	.065/.047	18	.050/.033	5/16	0.110	0.280	0.312	12.60	114.25	
STCR-13/20	13	.095/.071	20	.0355/.023	3/8	0.140	0.250	0.438	12.60	114.25	
STCR-13/18	13	.095/.071	18	.050/.033	3/8	0.140	0.280	0.438	13.90	125.95	
STCR-13/16	13	.095/.071	16	.065/.047	3/8	0.140	0.312	0.438	12.70	115.10	
STCR-09/20	9	.148/.118	20	.0355/.023	7/16	0.210	0.250	0.540	12.60	114.25	
STCR-09/18	9	.148/.118	18	.050/.033	7/16	0.210	0.250	0.540	12.60	114.25	
STCR-09/16	9	.148/.118	16	.065/.047	7/16	0.210	0.312	0.540	13.50	122.35	
STCR-09/13	9	.148/.118	13	.095/.071	7/16	0.210	0.438	0.540	12.80	116.05	
STCR-06/18	6	.203/.173	18	.050/.033	1/2	0.280	0.280	0.590	12.80	116.05	
STCR-06/16	6	.203/.173	16	.065/.047	1/2	0.280	0.312	0.590	12.70	115.15	
STCR-06/13	6	.203/.173	13	.095/.071	1/2	0.280	0.438	0.590	12.50	113.30	
STCR-06/09	6	.203/.173	9	.148/.118	1/2	0.280	0.540	0.590	12.50	113.30	

Miniature Stainless Steel Tubing Manifolds

Part No.	Inlet Gauge	Dimensions in Inches		Outlet Gauge	O.D./I.D.	A	B Tol 0.005	C Tol 0.05	E	F	G	H	Each	10
		O.D./I.D.												
STCM-13-20/4	13	.095/.071	(4)-20	.0355/.023	1/4	1/4	0.25	1-1/16	0.438	3/16	9/16	\$25.20	\$227.30	
STCM-13-20/6	13	.095/.071	(6)-20	.0355/.023	1/4	1/4	0.25	1-3/8	0.438	3/16	15/16	21.50	193.95	
STCM-09-18/4	9	.148/.118	(4)-18	.050/.033	3/8	1/4	0.28	1-1/16	0.540	3/16	9/16	25.80	180.40	
STCM-09-18/6	9	.148/.118	(6)-18	.050/.033	3/8	1/4	0.28	1-3/8	0.540	3/16	15/16	20.00	180.40	
STCM-09-16/4	9	.148/.118	(4)-16	.065/.047	3/8	1/4	0.312	1-1/4	0.540	1/4	3/4	21.00	189.45	
STCM-09-16/6	9	.148/.118	(6)-16	.065/.047	3/8	1/4	0.312	1-3/4	0.540	1/4	1-1/4	22.20	200.20	
STCM-06-13/4	6	.203/.173	(4)-13	.095/.071	1/2	1/4	0.438	1-3/8	0.590	1/4	3/4	21.20	191.25	
STCM-06-13/6	6	.203/.173	(6)-13	.095/.071	1/2	1/4	0.438	1-7/8	0.590	1/4	1-1/4	21.50	193.95	

Reducing Tee Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Tubing I.D.	Pipe Thread		
TFN-BRT062/093	TFP-BRT062/093	1/16 x 1/16 x 3/32		\$10.40	\$35.70
TFN-BRT093/062	TFP-BRT093/062	3/32 x 3/32 x 1/16		10.40	35.70
TFN-BRT125/187	TFP-BRT125/187	1/8 x 1/8 x 3/16		12.05	41.15
TFN-BRT375/125	TFP-BRT375/125	3/8 x 3/8 x 1/8		15.55	51.20
TFN-BRT375/250	TFP-BRT375/250	3/8 x 3/8 x 1/4		16.00	54.90

Straight Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Tubing I.D.	Pipe Thread		
TFN-BAM062/1032	TFP-BAM062/1032	1/16	10-32 UNF	\$7.25	\$24.80
TFN-BAM062/14	TFP-BAM062/14	1/16	1/4-18 NPT	11.65	39.75
TFN-BAM062/18	TFP-BAM062/18	1/16	1/8-27 NPT	10.40	35.55
TFN-BAM093/1032	TFP-BAM093/1032	3/32	10-32 UNF	7.25	24.80
TFN-BAM093/18	TFP-BAM093/18	3/32	1/8-27 NPT	10.40	35.55
TFN-BAM125/1032	TFP-BAM125/1032	1/8	10-32 UNF	7.25	24.80
TFN-BAM125/14	TFP-BAM125/14	1/8	1/4-18 NPT	11.65	39.75
TFN-BAM125/1428	TFP-BAM125/1428	1/8	1/4-28 UNF	10.15	34.80
TFN-BAM125/18	TFP-BAM125/18	1/8	1/8-27 NPT	10.40	35.55
TFN-BAM187/14	TFP-BAM187/14	3/16	1/4-18 NPT	11.65	39.75
TFN-BAM187/18	TFP-BAM187/18	3/16	1/8-27 NPT	10.95	37.50
TFN-BAM250/12	TFP-BAM250/12	1/4	1/2-14 NPT	13.20	45.15
TFN-BAM250/14	TFP-BAM250/14	1/4	1/4-18 NPT	11.65	39.75
TFN-BAM250/1428	TFP-BAM250/1428	1/4	1/4-28 UNF	10.15	34.80
TFN-BAM250/18	TFP-BAM250/18	1/4	1/8-27 NPT	11.05	37.90
TFN-BAM375/12	TFP-BAM375/12	3/8	1/2-14 NPT	13.20	45.15
TFN-BAM375/18	TFP-BAM375/18	3/8	1/8-27 NPT	10.95	37.50
TFN-BAM500/12	TFP-BAM500/12	1/2	1/2-14 NPT	13.20	45.15

Branch Tees



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Tubing I.D.	Pipe Thread		
TFN-BAT062/18	TFP-BAT062/18	1/16	1/8-27 NPT	\$14.30	\$48.95
TFN-BAT125/1032	TFP-BAT125/1032	1/8	10-32 UNF	13.05	44.70
TFN-BAT125/18	TFP-BAT125/18	1/8	1/8-27 NPT	14.80	50.40
TFN-BAT250/18	TFP-BAT250/18	1/4	1/8-27 NPT	15.15	51.80

Branch Elbows



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Tubing I.D.	Pipe Thread		
TFN-BAE187/18	TFP-BAE187/18	Branched Elbow	3/16 1/8-27 NPT	\$32.40	\$111.15

Internally Threaded Elbows



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Pipe Thread			
TFN-TE14	TFP-TE14	1/4-18 FNPT		\$53.80	\$184.35

Barbed Elbows External Threads



Nylon Part No.	Description	Dimensions in Inches		10	25	100
		Tubing I.D.	Pipe Thread			
TFN-BEM062/1032	Barbed Elbow	1/16	10-32 UNF	\$7.10	\$15.45	\$53.00
TFN-BEM125/1032	Barbed Elbow	1/8	10-32 UNF	7.10	15.45	53.00
TFN-BEM125/18	Barbed Elbow	1/8	1/8-27 NPT	7.55	16.45	56.50
TFN-BEM187/18	Barbed Elbow	3/16	1/8-27 NPT	7.55	16.60	56.85
TFN-BEM187/38	Barbed Elbow	3/16	3/8-27 NPT	8.70	19.15	65.35
TFN-BEM250/18	Barbed Elbow	1/4	1/2-14 NPT	8.55	18.65	63.95
TFN-BEM250/12	Barbed Elbow	1/4	1/8-27 NPT	7.55	16.60	56.85

Barbed Elbows Internal Threads



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Tubing I.D.	Pipe Thread		
TFN-BEF187/18	TFP-BEF187/18	3/16	1/8-27 FNPT	\$24.90	\$85.15
TFN-BEF250/18	TFP-BEF250/18	1/4	1/8-27 FNPT	24.90	85.15

Elbows Internal/External Threads



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Internal Pipe Thread	External Pipe Thread		
TFN-RSE14/18	TFP-RSE14/18	1/4-18 FNPT	1/8-27 NPT	\$34.90	\$119.60
TFN-RSE14/38	TFP-RSE14/38	1/4-18 FNPT	3/8-18 NPT	37.15	127.25
TFN-RSE18/14	TFP-RSE18/14	1/8-27 FNPT	1/4-18 NPT	35.00	120.00
TFN-RSE18/38	TFP-RSE18/38	1/8-27 FNPT	3/8-18 NPT	37.15	127.25
TFN-SE14	TFP-SE14	1/4-18 FNPT	1/4-18 NPT	35.00	120.00
TFN-SE18	TFP-SE18	1/8-27 FNPT	1/8-27 NPT	34.90	119.60
TFN-SE38	TFP-SE38	3/8-18 FNPT	3/8-18 NPT	37.15	127.25

Plugs



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Pipe Thread			
TFN-MP1032	TFP-MP1032	10/32 UNF		\$6.50	\$22.25
TFN-MP18	TFP-MP18	1/8-27 NPT		8.45	29.05
TFN-MP14	TFP-MP14	1/4-18 NPT		8.55	29.35

Locking Sleeves



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		Tubing I.D.			
TFN-LS125	TFP-LS125	1/8		\$2.10	\$7.05
TFN-LS187	TFP-LS187	3/16		2.65	9.10
TFN-LS250	TFP-LS250	1/4		3.10	10.70
TFN-LS375	TFP-LS375	3/8		4.60	15.70

Reducers



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches		25	100
		External Pipe Thread	Internal Pipe Thread		
TFN-TR18/1032	TFP-TR18/1032	1/8-27 NPT	10-32 UNF	\$15.05	\$51.45
TFN-TR18/1428	TFP-TR18/1428	1/8-27 NPT	1/4-28 UNF	15.05	51.45
TFN-TR14/1032	TFP-TR14/1032	1/4-18 NPT	10-32 UNF	15.05	51.45
TFN-TR14/1428	TFP-TR14/1428	1/4-18 NPT	1/4-28 UNF	14.05	48.00
TFN-TR14/18	TFP-TR14/18	1/4-18 NPT	1/8-27 NPT	14.05	48.00



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To purchase from our wide assortment of Connectors.

Straight Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches Tubing I.D.	10	25	100	Kynar® Part No.	Each	10	25
TFN-BC062	TFP-BC062	1/16 x 1/16	\$3.10	\$6.85	\$23.25	TFK-BC062	\$1.00	\$8.15	\$18.30
TFN-BC093	TFP-BC093	3/32 x 3/32	3.10	6.85	23.25	TFK-BC093	1.00	8.15	18.30
TFN-BC125	TFP-BC125	1/8 x 1/8	3.10	6.85	23.25	TFK-BC125	1.00	8.15	18.30
TFN-BC187	TFP-BC187	3/16 x 3/16	3.55	7.75	26.55	TFK-BC187	1.50	14.15	31.75
TFN-BC250	TFP-BC250	1/4 x 1/4	4.05	9.00	29.95	TFK-BC250	1.75	16.25	36.55
TFN-BC375	TFP-BC375	3/8 x 3/8	4.25	9.30	31.50				
TFN-BC500	TFP-BC500	1/2 x 1/2	4.30	9.40	32.20				

Reducing Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches Tubing I.D.	10	25	100	Kynar® Part No.	Each	10	25
TFN-BRC093/062	TFP-BRC093/062	3/32 x 1/16	\$3.10	\$6.85	\$23.25	TFK-BRC093/062	\$1.00	\$7.25	\$16.25
TFN-BRC125/062	TFP-BRC125/062	1/8 x 1/16	3.10	6.85	23.25	TFK-BRC125/062	1.00	7.25	16.25
TFN-BRC125/093	TFP-BRC125/093	1/8 x 3/32	3.10	6.85	23.25	TFK-BRC125/093	1.00	7.25	16.25
TFN-BRC187/062	TFP-BRC187/062	3/16 x 1/16	3.05	6.70	22.80	TFK-BRC187/062	1.25	11.80	26.75
TFN-BRC187/093	TFP-BRC187/093	3/16 x 3/32	3.30	7.15	24.55	TFK-BRC187/093	1.50	13.50	29.95
TFN-BRC187/125	TFP-BRC187/125	3/16 x 1/8/ 1/4 x 1/8	3.35	7.30	25.05	TFK-BRC187/125	1.45	14.10	31.65
TFN-BRC250/187	TFP-BRC250/187	1/4 x 3/16	3.60	7.90	27.10	TFK-BRC250/125	1.55	14.50	32.50
TFN-BRC375/125	TFP-BRC375/125	3/8 x 1/8	4.05	8.85	30.15	TFK-BRC250/187	1.55	14.50	32.50
TFN-BRC375/250	TFP-BRC375/250	3/8 x 1/4	4.05	8.85	30.15				

Elbow Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches Tubing I.D.	10	25	100	Kynar® Part No.	Each	10	25
TFN-BE062	TFP-BE062	1/16 x 1/16	\$4.85	\$10.40	\$35.70	TFK-BE062	\$1.05	\$9.75	\$21.85
TFN-BE093	TFP-BE093	3/32 x 3/32	4.85	10.40	35.70	TFK-BE093	1.05	9.75	21.85
TFN-BE125	TFP-BE125	1/8 x 1/8	4.95	10.85	37.15	TFK-BE125	1.15	10.85	24.50
TFN-BE187	TFP-BE187	3/16 x 3/16	6.15	13.50	46.40	TFK-BE187	2.10	19.95	44.95
TFN-BE250	TFP-BE250	1/4 x 1/4	6.65	14.55	49.75	TFK-BE250	2.45	23.15	51.95
TFN-BE375	TFP-BE375	3/8 x 3/8	7.55	16.60	56.60				
TFN-BE500	TFP-BE500	1/2 x 1/2	7.80	17.10	58.55				

"Y" Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches Tubing I.D.	Each	10	25	Kynar® Part No.	Each	10	25
TFN-BY062	TFP-BY062	1/16 X 1/16 X 1/16	\$1.55	\$13.55	\$29.05	TFK-BY062	\$1.40	\$12.95	\$29.10
TFN-BY093	TFP-BY093	3/32 X 3/32 X 3/32	1.55	13.55	29.05	TFK-BY093	1.40	12.95	29.10
TFN-BY125	TFP-BY125	1/8 X 1/8 X 1/8	1.80	15.00	32.15	TFK-BY125	1.65	14.50	32.50
TFN-BY187	TFP-BY187	3/16 X 3/16 X 3/16	2.50	22.15	47.45	TFK-BY187	2.80	26.60	59.85
TFN-BY250	TFP-BY250	1/4 X 1/4 X 1/4	2.90	25.70	55.10	TFK-BY250	3.25	30.80	69.30
TFN-BY375	TFP-BY375	3/8 X 3/8 X 3/8	3.50	30.70	65.80				

Tee Connectors



Nylon Part No.	Polypropylene Part No.	Dimensions in Inches Tubing I.D.	10	25	100	Kynar® Part No.	Each	10	25
TFN-BT062	TFP-BT062	1/16 x 1/16 x 1/16	\$4.20	\$8.95	\$29.80	TFK-BT062	\$1.05	\$9.75	\$21.85
TFN-BT093	TFP-BT093	3/32 x 3/32 x 3/32	4.20	8.95	29.80	TFK-BT093	1.05	9.75	21.85
TFN-BT125	TFP-BT125	1/8 x 1/8 x 1/8	4.35	9.30	33.00	TFK-BT125	1.15	10.85	24.50
TFN-BT187	TFP-BT187	3/16 x 3/16 x 3/16	5.40	11.60	38.25	TFK-BT187	2.10	19.95	44.95
TFN-BT250	TFP-BT250	1/4 x 1/4 x 1/4	5.85	12.45	41.30	TFK-BT250	2.45	23.15	51.95
TFN-BT375	TFP-BT375	3/8 x 3/8 x 3/8	6.65	14.20	47.20				
TFN-BT500	TFP-BT500	1/2 x 1/2 x 1/2	6.90	14.65	48.75				

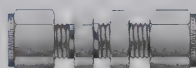
Parker A-Lok® Instrumentation Fittings Compression Fittings

Parker instrumentation A-Lok® fittings meet the stringent demands of process control, power and instrumentation systems. These dual ferrule fittings provide leak proof connections and are used in chemical, petroleum, power generation, laboratory, and medical device plants. Small Parts, Inc. stocks A-Lok® fittings made from heat code traceable 316 stainless steel and brass. They are compatible with all types of stainless steel, copper, and various rigid and semi-rigid plastic tubing. These fittings are not recommended for soft tubing. **Dimensions in Inches.**



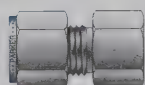
316 S/S A-Lok® Male Connector			
Part No.	Tube 1 O.D.	Male NPT	Each
1MSC1N-316-01	1/16	1/16	\$10.25
1MSC2N-316-01	1/16	1/8	10.55
1MSC4N-316-01	1/16	1/4	14.85
2MSC1N-316-01	1/8	1/16	6.85
2MSC2N-316-01	1/8	1/8	6.70
2MSC4N-316-01	1/8	1/4	7.40
2MSC6N-316-01	1/8	3/8	12.15
2MSC8N-316-01	1/8	1/2	13.45
4MSC1N-316-01	1/4	1/16	7.10
4MSC2N-316-01	1/4	1/8	5.90
4MSC4N-316-01	1/4	1/4	6.15
4MSC6N-316-01	1/4	3/8	8.00
4MSC8N-316-01	1/4	1/2	10.50

Brass A-Lok® Male Connector			
Part No.	Tube 1 O.D.	Male NPT	Each
1MSC1N-B-01	1/16	1/16	\$3.45
1MSC2N-B-01	1/16	1/8	3.30
2MSC1N-B-01	1/8	1/16	2.70
2MSC2N-B-01	1/8	1/8	2.55
2MSC4N-B-01	1/8	1/4	2.80
2MSC6N-B-01	1/8	3/8	4.55
4MSC1N-B-01	1/4	1/16	2.80
4MSC2N-B-01	1/4	1/8	2.30
4MSC4N-B-01	1/4	1/4	2.30
4MSC6N-B-01	1/4	3/8	3.05
4MSC8N-B-01	1/4	1/2	4.35



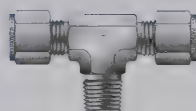
316 S/S A-Lok® Bulkhead Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
1BC1-316-01	1/16	1/16	\$35.30
2BC2-316-01	1/8	1/8	20.25
4BC2-316-01	1/4	1/8	18.00
4BC4-316-01	1/4	1/4	14.40

Brass A-Lok® Bulkhead Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
1BC1-B-01	1/16	1/16	\$13.45
2BC2-B-01	1/8	1/8	5.45
4BC4-B-01	1/4	1/4	4.55



316 S/S A-Lok® Female Connector			
Part No.	Tube 1 O.D.	Female NPT	Each
1FSC1N-316-01	1/16	1/16	\$15.10
1FSC2N-316-01	1/16	1/8	16.10
2FSC2N-316-01	1/8	1/8	8.75
2FSC4N-316-01	1/8	1/4	10.15
4FSC2N-316-01	1/4	1/8	8.25
4FSC4N-316-01	1/4	1/4	10.20
4FSC6N-316-01	1/4	3/8	13.05
4FSC8N-316-01	1/4	1/2	14.20

Brass A-Lok® Female Connector			
Part No.	Tube 1 O.D.	Female NPT	Each
2FSC2N-B-01	1/8	1/8	\$3.30
2FSC4N-B-01	1/8	1/4	3.45
4FSC2N-B-01	1/4	1/8	2.80
4FSC4N-B-01	1/4	1/4	3.05
4FSC6N-B-01	1/4	3/8	3.95
4FSC8N-B-01	1/4	1/2	5.60



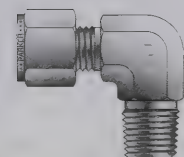
316 S/S A-Lok® Male Branch Tee				
Part No.	Tube 1 O.D.	Tube 2 O.D.	Male NPT	Each
2MBT2N-316-01	1/8	1/8	1/8	\$22.40
4MBT2N-316-01	1/4	1/4	1/8	21.25
4MBT4N-316-01	1/4	1/4	1/4	24.60

Brass A-Lok® Male Branch Tee				
Part No.	Tube 1 O.D.	Tube 2 O.D.	Male NPT	Each
2MBT2N-B-01	1/8	1/8	1/8	\$8.10
4MBT2N-B-01	1/4	1/4	1/8	8.10
4MBT4N-B-01	1/4	1/4	1/4	8.10



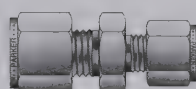
316 S/S A-Lok® Male Run Tee				
Part No.	Tube 1 O.D.	Male NPT	Tube 2 O.D.	Each
2MRT2N-316-01	1/8	1/8	1/8	\$22.40
4MRT2N-316-01	1/4	1/8	1/4	20.70
4MRT4N-316-01	1/4	1/4	1/4	24.60

Brass A-Lok® Male Run Tee				
Part No.	Tube 1 O.D.	Male NPT	Tube 2 O.D.	Each
2MRT2N-B-01	1/8	1/8	1/8	\$8.10
4MRT2N-B-01	1/4	1/8	1/4	8.10
4MRT4N-B-01	1/4	1/4	1/4	8.10



316 S/S A-Lok® Male Elbow			
Part No.	Tube 1 O.D.	Male NPT	Each
1MSEL1N-316-01	1/16	1/16	\$22.65
1MSEL2N-316-01	1/16	1/8	20.15
2MSEL1N-316-01	1/8	1/16	23.70
2MSEL2N-316-01	1/8	1/8	10.75
2MSEL4N-316-01	1/8	1/4	11.60
4MSEL2N-316-01	1/4	1/8	10.60
4MSEL4N-316-01	1/4	1/4	11.65
4MSEL6N-316-01	1/4	3/8	17.15
4MSEL8N-316-01	1/4	1/2	19.25

Brass A-Lok® Male Elbow			
Part No.	Tube 1 O.D.	Male NPT	Each
1MSEL1N-B-01	1/16	1/16	\$19.05
1MSEL2N-B-01	1/16	1/8	5.70
2MSEL1N-B-01	1/8	1/16	6.60
2MSEL2N-B-01	1/8	1/8	5.10
2MSEL4N-B-01	1/8	1/4	4.95
4MSEL1N-B-01	1/4	1/16	6.35
4MSEL2N-B-01	1/4	1/8	4.45
4MSEL4N-B-01	1/4	1/4	4.75



316 S/S A-Lok® Reducing Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
2RU1-316-01	1/8	1/16	\$13.95
4RU1-316-01	1/4	1/16	11.80
4RU2-316-01	1/4	1/8	10.80
4RU3-316-01	1/4	3/16	10.80

Brass A-Lok® Reducing Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
2RU1-B-01	1/8	1/16	\$4.05
4RU1-B-01	1/4	1/16	4.05
4RU2-B-01	1/4	1/8	3.29
4RU3-B-01	1/4	3/16	3.29



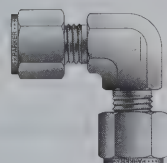
316 S/S A-Lok® Union			
Part No.	Tube 1 O.D.	Port 2 Size	Each
1SC1-316-01	1/16	1/16	\$14.55
2SC2-316-01	1/8	1/8	10.00
4SC4-316-01	1/4	1/4	9.45

Brass A-Lok® Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
1SC1-B-01	1/16	1/16	\$4.55
2SC2-B-01	1/8	1/8	3.70
4SC4-B-01	1/4	1/4	2.70



316 S/S A-Lok® Union Tee				
Part No.	Tube 1 O.D.	Tube 2 O.D.	Tube 3 O.D.	Each
1ET1-316-01	1/16	1/16	1/16	\$36.35
2ET2-316-01	1/8	1/8	1/8	22.40
4ET4-316-01	1/4	1/4	1/4	19.45

Brass A-Lok® Union Tee				
Part No.	Tube 1 O.D.	Tube 2 O.D.	Tube 3 O.D.	Each
1ET1-B-01	1/16	1/16	1/16	\$10.90
2ET2-B-01	1/8	1/8	1/8	7.85
4ET4-B-01	1/4	1/4	1/4	7.50



316 S/S A-Lok® Union Elbow			
Part No.	Tube O.D.	Tube 2 O.D.	Each
1EE1-316-01	1/16	1/16	\$24.80
2EE2-316-01	1/8	1/8	13.80
4EE4-316-01	1/4	1/4	14.20

Brass A-Lok® Union Elbow			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
2EE2-B-01	1/8	1/8	\$6.20
4EE4-B-01	1/4	1/4	4.95

Parker Products Partek Paragrip PFA Fittings Compression Fittings

Parker Products Partek Paragrip PFA (Perfluoro-alkoxy) fittings are chemically inert and highly corrosion resistant. PFA is a fluoropolymer similar to PTFE (Polytetrafluoroethylene) with melt process characteristics. Additionally, it has higher mechanical strength at elevated temperatures (to 500 F). Tube fittings are compression type with ETFE (ethylene-tetrafluoroethylene) gripper and PTFE ferrule. Partek PFA Pipe Fittings have standard NPT threads. Dimensions in Inches.



Union Tee				
Part No.	Tube 1 O.D.	Tube 2 O.D.	Tube 3 O.D.	Each
GTC-2-01	1/8	1/8	1/8	\$20.50
GTC-4-01	1/4	1/4	1/4	25.90



Straight Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
GSC-2-01	1/8	1/8	\$15.60
GSC-4-01	1/4	1/4	18.70



Bulkhead Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
GSC-2-P-01	1/8	1/8	\$29.90
GSC-4-P-01	1/4	1/4	31.10



Male Branch Tee				
Part No.	Tube 1 O.D.	Tube 2 O.D.	Male NPT	Each
GBMT-222-01	1/8	1/8	1/8	\$20.80
GBMT-442-01	1/4	1/4	1/8	20.80
GBMT-444-01	1/4	1/4	1/4	20.80
GBMT-224-01	1/8	1/8	1/4	23.50



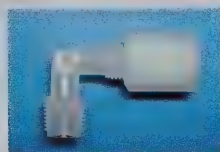
Union Elbow			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
GEC-2-01	1/8	1/8	\$15.90
GEC-4-01	1/4	1/4	18.70



Reducing Union			
Part No.	Tube 1 O.D.	Tube 2 O.D.	Each
GSCR-42-01	1/4	1/8	\$17.20



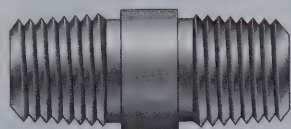
Female Pipe Adapter			
Part No.	Tube 1 O.D.	Female NPT	Each
GAFS-22-01	1/8	1/8	\$15.90
GAFS-24-01	1/8	1/4	15.90
GAFS-42-01	1/4	1/8	19.90
GAFS-44-01	1/4	1/4	19.90



Male Elbow			
Part No.	Tube 1 O.D.	Male NPT	Each
GAME-22-01	1/8	1/8	\$11.10
GAME-42-01	1/4	1/8	17.20
GAME-44-01	1/4	1/4	17.20
GAME-64-01	3/8	1/4	17.90



Male Pipe Adapter			
Part No.	Tube 1 O.D.	Male NPT	Each
GAMS-22-01	1/8	1/8	\$15.30
GAMS-42-01	1/4	1/8	16.10
GAMS-44-01	1/4	1/4	16.10



Parker Instrumentation Pipe Fittings

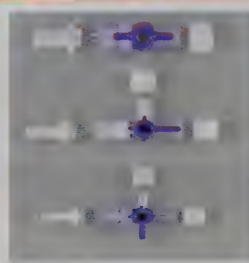
Parker instrumentation pipe fittings are precision machined from close grain forgings for elbows, tees and crosses and from bar stock for straight connectors.

They are designed to be used for process control and instrumentation connections between pipe sizes and tube sizes. Applications include process, power, instrumentation and general plumbing. Small Parts, Inc. stocks a wide variety of these fittings in 316 stainless steel and brass.



Go to www.smallparts.com

For over 200 types of new Pipe Fittings in-stock and available to purchase.



Disposable Stopcocks

Polycarbonate/Polyethylene

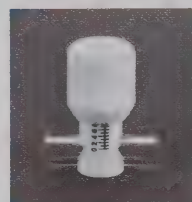
Get 1-Way, 3-Way or 4-Way Flow Control — Nonsterile

Disposable stopcocks with Luer connections feature male and female Luer lock construction. They can be used to regulate flow or as on/off valves in gas or liquid circuits. Rated to 75 psi, these stopcocks have a polycarbonate body and a handle/stem made of polyethylene. Can be gas sterilized.

Handles rotate 90 degrees on the 1-way stopcocks; 180 degrees on the 3-way stopcocks; and 360 degrees on the 4-way stopcocks. Each unit comes with a polyethylene cap for each opening.

Disposable Stopcocks

Part No.	Description	Each	10	25	100
LSCP-100C	1-way	\$2.35	\$21.25	\$40.15	\$133.80
LSCP-300B	3-way	2.35	21.25	40.15	133.80
LSCP-400B	4-way	2.35	21.25	40.15	133.80



Flow Control Pinch Valve

Fine adjustments to fluid flow are easy to achieve and they are repeatable with the Flow Control Pinch Valve. Non-destructive, leak-proof valves easily mount on existing tube lines, so fluid contact with the valve is eliminated. No fittings, cutting or removal of existing tubing is needed for installation.

Easy-to-read metered scale on valve body lets you calibrate with needle valve style adjustability, from 0 to full flow. Three sizes to accommodate all types and sizes of flexible tubing diameters from as small as 5/32" up to 1/2". (Shore 70A durometer and softer). Made of high quality Delrin® acetal homopolymer for strength and durability.

Pinch Valves (Acetal Homopolymer Delrin®)

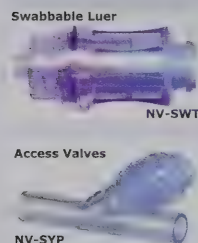
Dimensions in Inches		Each
Part. No.	Fits tube O.D.	
FPV-04	Fits tube OD 5/32, 3/16, 7/32, 1/4	\$8.75
FPV-06	Fits tube OD 5/16, 11/32, 3/8	10.60
FPV-08	Fits tube OD 7/16, 1/2	13.60



Shut-off Valve

This unique shut-off valve provides quick, positive on/off control of flow through flexible plastic tubing (see our catalog for more tubing). Its single-piece design assures maximum laminar flow through even the smallest tube sizes, and the

valve itself is small enough for use in very compact spaces. When the valve is in the closed position, an orange band is clearly visible, to prevent operator error. Shut-off valves can be used for either pressure or vacuum applications



Needleless Valves

Syringe Tip Activated —Non-sterile

Designed to fill, hold and release controlled amounts of fluid or gases on demand, needleless valves require only a standard male Luer for actuation — no needles are needed to access the circuit. Once actuated, the valve opens for two-way flow. When the male Luer is removed, the component seals automatically.

Highly reliable and virtually jam-proof as well as leak-proof, needleless valves are typically used in the laboratory where gas or fluid circuits require access. In medical uses, they are substituted for needle ports in fluid delivery systems.

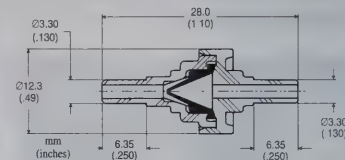
Check Valve — 1/8" I.D. Tubing

Supravalve® - Nonsterile

Purges air in less than 3 seconds!

The Supravalve® is a functional, one-way Check Valve assembly that provides virtually immediate free-flow in the forward direction and minimum backflow leakage. It was designed for medical product applications where a reliable valve is needed to prevent solution backflow at very low pressure differential.

Major advantages of the Supravalve® are the purging of air in less than three seconds (a rate three to four times faster than other valves); air entrapment is minimized; the assembly is 100% airflow tested for free-flow, checking and pressure integrity. The Supravalve® is compatible with standard 1/8" (3.2mm) I.D. tubing. Operating Pressure Range 0-30 psi. There are two types of Check Valves available. CVA-02 consists of a clear acrylic housing and a silicone duckbill. It is sterilizable by EtO or gamma irradiation (up to 5 megarads) and withstands continuous service temperatures to 140°F (60°C). CVP-02 consists of blue-tint polycarbonate housing and silicone duckbill. It is suitable for gamma irradiation and EtO sterilization methods, withstands continuous service temperatures up to 212°F (100°C), and is resistant to isopropyl alcohol.



Comparison Chart

Design Area	Regular Disk Valves	Supravalve®
Static position	Normally open	Normally closed
Backflow at 8"H ₂ O - Differential pressure	Some	None
Reopening H ₂ O - Differential pressure	Unpredictable	Less than 1.0
Position sensitive	Yes	No
Clearance time seconds average	15 seconds	Less than 3.0
Fluid path	Indirect	Direct
Air entrapment	Likely	Unlikely

Check Valves

Part No.	Material	Each	10	25	100	1000
CVA-02	Acrylic	\$3.85	\$23.50	\$46.25	\$125.00	\$890.00
CVP-02	Polycarbonate	4.50	27.00	53.75	175.00	1187.50

Physical Properties

Working Pressure	120 psi
Maximum Operating Temperature	180°F (82°C)
Bodies	Delrin® (Acetal)
Springs and Latches	Stainless Steel
Seals	Buna-N

Acetal Shut-Off Valve

Dimensions in Inches				Each	5
Part No.	Nominal Flow Diameter	Tube I.D.	Overall Length		
SVD-02	1/8	1/8	2-1/2	\$14.75	\$61.20
SVD-04	1/4	1/4	3-1/8	16.15	67.20
SVD-06	1/4	3/8	3-1/8	18.95	78.80



Standard Luer Access Valves are offered in t-port and tube end styles. t-port valve bodies are made of polycarbonate, tube ends are made of Polypropylene. Both have silicone stems.

Swabbable Luer Access Valves provide a hermetic seal between the syringe Luer tip and valve, helping to protect against bacteria growth on internal valve sections. A relatively new design, these valves are easy to swab, clean or disinfect because the contact surface area of the syringe tip is flush with the entry point. They offer high flow, a positive seal up to 60 psi, low priming volume, and minimal backflow upon syringe removal. Both the Threaded Valve and The Y-port Valve are constructed of clear polycarbonate with silicone stems.

Needleless Valves — Polycarbonate / Polypropylene / Silicone MIL-S 6758

		Dimensions in Inches				Each	10	25	100
Part No.	Description	O.D.	I.D.						
NV-SWT	Swabbable Threaded Valve	Luer	Luer			\$3.00	\$22.50	\$46.95	\$150.00
NV-SYP	Swabbable Y-Port	1/4	5/32			3.00	22.50	46.95	150.00
NV-TE	Tube End	5/16	—			—	5.00	10.00	35.00
NV-TP	T-Port	1/4	5/32			1.85	15.00	31.25	95.70



Peristaltic Pumps

Peristaltic pumps have no valves, seals or glands, and the fluid contacts only the bore of the hose or tube. Peristaltic pumps use rotating rollers pressed against special flexible tubing to create a pressurized flow. The tube is compressed at a number of points in contact with the rollers or shoes. The media is moved through the tube with each rotating motion. Nothing but the hose or tube touches the fluid, eliminating the risk of the pump contaminating the fluid, or the fluid contaminating the pump. The complete closure of the hose gives the pump its positive displacement action, preventing backflow and eliminating the need for check-valves when the pump is not running.

This pump selection offers you the ability to move fluids at variable rates between 0.3 ml/min to 1,000 ml/min. The 2,000 ml/min (**PTP-4000**) unit is a fixed rate pump.

913 Series Flow Rates* (ml/min) for Indicated Tubing ID				
Part No.	Tube I.D.	Flow Rates*	RPM Range	AMPS
PTP-2408	1/16"	0.3 to 5.5	1.5 to 26	0.5
	1/8"	1.3 to 22		
	3/16"	3 to 52		
	1/4"	6 to 90		
PTP-2450	1/16"	0.8 to 24	4 to 114	0.5
	1/8"	3 to 96		
	3/16"	8 to 228		
	1/4"	14 to 400		
PTP-24127 or PTP-CE**	1/16"	1.7 to 48	8 to 228	1.0
	1/8"	7 to 190		
	3/16"	16 to 456		
	1/4"	28 to 1000		

*All approximate flow rates are based on pumping water with thermoplastic elastomer tubing
** 220 Volts

Peristaltic Pumps

Part No.	Pump Speed	Flow Rate	Each
PTP-2408	1.5 to 26 RPM	See Chart	\$537.36
PTP-2450	4 to 114 RPM	See Chart	537.36
PTP-24127	4 to 282 RPM	See Chart	537.36
PTP-CE**	4 to 282 RPM	Same as PTP-24127	624.75
PTP-4000	—	2000 ml/min	630.18

** 220 Volts

ASHCROFT



General Purpose Digital Gauge

Type D1005PS, ($\pm 0.5\%$ of Span)
Terminal Point Accuracy

- On/Off feature with four programmable auto-off options
- Easy-to-Read, 4.5", four-digit display with .5" character size and backlight feature to enhance visibility
- Battery level indicator
- Nine units of measure
- Range on keypad complies with ASME B40.7, reduces possibility of accidental over pressure
- Optional rubber boot shown on gauge available
- Proof pressure from 120% to 200% of range

- CE approval (provides EMI and RFI protection)
- Optional pressure snubber available

Other Features

The Type D1005PS Ashcroft gauge offers 1/2% full scale accuracy, while the stainless steel sensor and socket make this gauge suitable not only for dry air applications but also for other media as well.

General Purpose Digital Pressure Gauge

Part No.	Pressure	Each
CPDG-L030	0/30 psi	\$195.00
CPDG-L060	0/60 psi	195.00
CPDG-L100	0/100 psi	195.00
CPDG-L200	0/200 psi	195.00

Vacuum Gauge

Part No.	Vacuum	Each
CPDG-02LV	-30/0 in.H ₂ O	\$195.00



Low Pressure Diaphragm Gauge

Series 1490, ASME B 40.1 Grade A
($\pm 2-1-2\%$ of Span)

- ASME 40.1
- Housing - polysulfone
- Window - polycarbonate or optional polysulfone.
- 2-1/2" Diameter
- 1/4 NPT Brass Socket
- White dial /Black numbers
- Adjustable pointer
- Optional Pressure Snubbers available

Note: (1 psi = 27.730 in.H₂O)

Other Features

The Ashcroft® Type 1490 Low Pressure Diaphragm Gauge is designed to measure pressure from 10 in. H₂O to 15 psi, both positive and negative pressures. This Ashcroft gauge uses a very sensitive diaphragm capsule to measure low pressure and vacuum. The gauge is specifically designed for use whenever the pressure medium is a gas that is not corrosive to beryllium copper, brass, polysulfone and RTV silicone. Typical applications for this Ashcroft gauge are, but not limited to, vacuum pumps, gas leak detectors, air compressors, air filters, gas burners, gas measurement, vacuum ovens, suction regulators, and respirators. For autoclaving, order polysulfone window separately. The standard polycarbonate window screws off, and the polysulfone window screws on.

Low Pressure Diaphragm Gauge

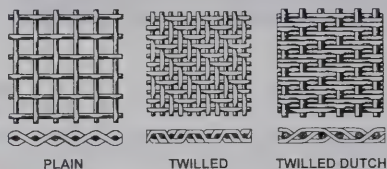
Part No.	Pressure	Each
LPDG-010IW	0/10 in.H ₂ O	\$37.40
LPDG-015IW	0/15 in.H ₂ O	37.40
LPDG-030IW	0/30 in.H ₂ O	37.40
LPDG-060IW	0/60 in.H ₂ O	37.40
LPDG-100IW	0/100 in.H ₂ O	37.40
LPDG-200IW	0/200 in.H ₂ O	37.40
LPDG-003PSI	0/3 psi	37.40
LPDG-005PSI	0/5 psi	37.40
LPDG-010PSI	0/10 psi	37.40

Vacuum Gauge

Part No.	Pressure	Each
LPDG-V010IW	Vac/10 in.H ₂ O	\$42.10
LPDG-V015IW	Vac/15 in.H ₂ O	42.10
LPDG-V060IW	Vac/60 in.H ₂ O	42.10

Stainless Steel Screening

Basic to all filtering is the ability of the media to withhold or pass particles of a desired size in the flow path. The very fine wire mesh of our standard stainless steel screening has many natural characteristics and is recommended for calendaring, filtering and processing: uniformity of hole size; excellent strength to weight ratio; a large percentage of open area; superior resistance to corrosion, abrasion, vibration and temperature variations; long life; and easy cleaning. Stainless steel screening may also be used for electrical shielding, structural fabrication, screening, and as ventilation guards.



Plain Weave

Single strands of stainless steel wire with equal diameters are woven wire over wire in both directions, producing a highly stable pattern of square openings. Selected mesh sizes of this standard wire cloth are available in both 304 and 316 stainless steel. Other sizes available by special order.

Stainless Steel 304 - Plain Weave

Part No.	Mesh #	Wire Diameter	Dimensions in Inches		% Open Area	Width of Opening		
			Inches	MM		-A	-B	-C
						3" x 6"	6" x 12"	12" x 24"
CX-0006	6	0.0350	0.131	3.35	62	\$ 2.65	\$ 8.70	\$ 33.15
CX-0010	10	0.0250	0.075	1.905	56	2.75	9.25	35.20
CX-0016	16	0.0180	0.045	1.143	51	2.85	9.85	37.80
CX-0020	20	0.0160	0.034	0.864	46	2.85	9.85	37.80
CX-0030	30	0.0120	0.021	0.533	41	3.15	10.80	41.30
CX-0040	40	0.0100	0.015	0.381	36	3.15	10.80	41.30
CX-0060	60	0.0075	0.009	0.229	31	3.15	10.80	41.30
CX-0080	80	0.0055	0.007	0.178	31	3.25	11.30	43.45
CX-0100	100	0.0045	0.005	0.14	30	3.25	11.30	43.35
CX-0150	150	0.0026	0.004	0.104	34	3.40	11.75	45.45
CX-0200	200	0.0023	0.002	0.074	29	3.50	12.30	47.45

Stainless Steel 316 - Plain Weave

Part No.	Mesh #	Wire Diameter	Dimensions in Inches		% Open Area	Width of Opening		
			Inches	MM		-A	-B	-C
						3" x 6"	6" x 12"	12" x 24"
CXX-020	20	0.0160	0.034	0.862	46	\$ 4.40	\$ 14.05	\$ 44.90
CXX-060	60	0.0075	0.009	0.229	31	3.35	10.60	34.00
CXX-080	80	0.0055	0.007	0.178	31	4.25	13.50	43.10
CXX-100	100	0.0045	0.005	0.14	30	3.25	10.35	32.95

Twilled Weave

Wires of similar gauge woven "over two, under two" are alternated progressively by one wire at a time. This twilled square pattern provides excellent filtration. Other sizes available by special order.

Stainless Steel 304 - Twilled Weave

Part No.	Mesh #	Wire Diameter	Dimensions in Inches		% Open Area	Width of Opening		
			Inches	MM		-A	-B	-C
						3" x 6"	6" x 12"	12" x 24"
CX-0325	325	0.0014	0.001	43	30	\$ 4.05	\$ 13.55	\$ 22.55
CX-0400	400	0.0012	0.001	38	36	8.05	26.70	44.00

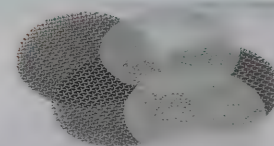
Twilled Dutch Weave

Wires of dissimilar gauge are also woven "over two, under two" in this twilled dutch pattern using a weave of heavy wire and fine wire to achieve excellent strength with superior filtration. Other sizes available by special order.

Stainless Steel 304 - Twilled Dutch Weave

Part No.	Mesh #	Thickness	Dimensions in Inches		Particle Retention	Width of Opening		
			Inches	MM		-A	-B	-C
						3" x 3"	6" x 6"	6" x 12"
CX-2300	325 x 2300	0.0015	0.0002	8	8	\$17.45	\$58.10	\$96.80

Filter Discs for In-Line Filter Holders Stainless Steel Type 304 Wire Cloth



Very fine wire mesh has many natural characteristics that are beneficial for calendaring, filtering and processing: uniformity of hole size, excellent strength to weight ratio and a large percentage of open area, superior resistance to corrosion, abrasion, vibration and temperature variations.

Also, it is durable and easy to clean.

Stainless Steel Type 304 Filter Discs 1/2" Diameter

Part No.	Mesh #	Mesh Opening	% Open Area	Weave	Dimensions in Inches		
					10	25	100
F040X-08	40	0.0150	36	Plain Square	\$5.35	\$12.15	\$40.50
F060X-08	60	0.0092	30.5	Plain Square	5.35	12.15	40.50
F080X-08	80	0.0070	31.4	Plain Square	5.35	12.15	40.50
F100X-08	100	0.0055	30.3	Plain Square	5.35	12.15	40.50
F150X-08	150	0.0041	37.4	Plain Square	6.65	15.15	50.50
F200X-08	200	0.0029	33.6	Plain Square	7.65	17.35	57.80
F325X-08	325	0.0017	30	Twilled Square	8.10	18.35	61.20
F400X-08	400	0.0015	36	Twilled Square	9.25	21.05	70.15

Assortments 1/2" Dia. for Filter Size

F9000-08-05	Contains 5 each of the above Filters 40 pcs	\$29.85
F9000-08-10	Contains 10 each of the above Filters 80 pcs	53.55

Stainless Steel Type 304 Filter Discs 3/4" Diameter

Part No.	Mesh #	Mesh Opening	% Open Area	Weave	Dimensions in Inches		
					10	25	100
F040X-12	40	0.0150	36	Plain Sq.	\$5.35	\$12.15	\$40.50
F060X-12	60	0.0092	30.5	Plain Sq.	5.35	12.15	40.50
F060X-12	80	0.0070	31.4	Plain Sq.	5.35	12.15	40.50
F100X-12	100	0.0055	30.3	Plain Sq.	5.35	12.15	40.50
F150X-12	150	0.0041	37.4	Plain Sq.	6.65	15.15	50.50
F200X-12	200	0.0029	33.6	Plain Sq.	7.65	17.35	57.80
F325X-12	325	0.0017	30	Twilled Sq.	8.10	18.35	61.20
F400X-12	400	0.0015	36	Twilled Sq.	9.25	21.05	70.15

Assortments 3/4" Dia. for Filter Size

F9000-12	Contains 5 each of the above Filters 75 pcs	\$29.85
F9000-12	Contains 10 each of the above Filters 150 pcs	53.55

Nylon 6/6 Filter Disc Nylon Screen Cloth Filters Monofilament

Nylon screen cloth is exceptionally strong and well suited for countless sifting, straining, and filtration applications where the unusual qualities of nylon are advantageous.

Nylon 6/6 Filter 1/2" Diameter

Part No.	Mesh Opening	Inches	% Open Area	Dimensions in Inches		
				10	25	100
F250N-08*	250	0.009	34	\$3.25	\$7.40	\$24.65
F210N-08*	210	0.008	33	3.25	7.40	24.65
F149N-08	149	0.005	38	3.25	7.40	24.65
F125N-08	125	0.004	37	3.25	7.40	24.65
F105N-08	105	0.004	36	3.25	7.40	24.65
F090N-08	90	0.003	47	3.25	7.40	24.65
F074N-08	74	0.002	35	3.25	7.40	24.65
F062N-08	62	0.002	35	3.25	7.40	24.65
F053N-08	53	0.002	36	3.25	7.40	24.65
F048N-08	48	0.001	31	3.75	8.45	28.10
F035N-08	35	0.001	27	3.75	8.45	28.10
F030N-08	30	0.001	21	3.75	8.45	28.10
F020N-08	20	0.000	14	3.75	8.45	28.10
F010N-08	10	0.000	2	4.20	8.70	28.95
F005N-08	5	0.000	1	4.25	8.85	29.50

*Nylon 6

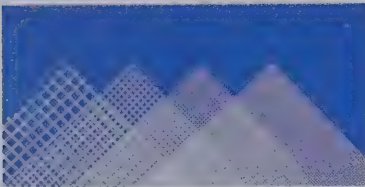
Assortments - Type 08 1/2" Diameter

F9000N-08-05	Contains 5 each of the above Nylon Filters-75 pcs	\$29.85
F9000N-08-10	Contains 10 each of the above Nylon Filters-150 pcs.	53.55



Go to www.smallparts.com

For Stainless Steel In-Line Filter Holders.



Nylon 6/6 Screening Cloth

Exceptionally strong and suited for countless sifting, straining, and filtration applications. Provided in the small sizes so useful in laboratory or shop. Can be gamma, steam and EtO sterilized. Slight yellowing may occur during steam sterilization, but will not significantly affect physical properties.
Softening temperature: 437° to 455°F (225° to 235°C).
Nylon 6 - softening temperature: 338°-365°F (170° - 185°C).
The standard roll width of 40" is also available and is sold by the linear foot.

Nylon 6/6 Screening

Part No.	Mesh Opening		Thread Diameter Microns	Mesh Count Inch	% Open Area	-A 3" x 6"	-B 6" x 12"	-C 12" x 12"	-D 12" x 24"
	Microns	Inches							
CMN-2000*	2000	0.0787	750	9	53	\$1.60	\$5.15	\$8.50	\$14.20
CMN-1320*	1320	0.0520	405	15	59	1.20	3.95	6.70	10.80
CMN-1180*	1180	0.0465	360	17	59	1.20	3.95	6.70	10.80
CMN-1000*	1000	0.0394	515	17	44	1.35	4.30	7.10	11.90
CMN-0850*	850	0.0335	405	20	53	1.20	3.95	6.70	10.80
CMN-0600*	600	0.0236	245	30	50.5	1.10	3.40	5.80	9.50
CMN-0500*	500	0.0197	315	30	37.5	1.15	3.70	6.15	10.25
CMN-0425*	425	0.0167	205	41	46	1.40	4.60	7.65	12.75
CMN-0350*	350	0.0138	240	43	35	1.35	4.05	6.75	11.15
CMN-0300*	310	0.0122	151	56	45	1.40	4.60	7.60	12.65
CMN-0250*	250	0.0098	180	58	34	1.35	4.30	7.10	11.90
CMN-0210*	210	0.0083	155	71	33	1.35	4.30	7.10	11.90
CMN-0185	190	0.0075	125	81	36.5	1.60	5.30	8.40	14.65
CMN-0165	165	0.0065	83	104	44	1.60	5.30	8.40	14.65
CMN-0149	150	0.0059	93 x 91	104/106	37.5	1.65	5.35	8.50	14.80
CMN-0132	132	0.0052	75	124	43	1.10	3.40	5.80	9.50
CMN-0136	130	0.0057	50	142	52	1.75	5.70	9.50	15.80
CMN-0125	125	0.0049	62	135	44.5	1.35	4.40	7.55	12.20
CMN-0120	120	0.0047	51	150	49	1.65	5.25	8.60	14.25
CMN-0112	110	0.0043	51	157	47	1.85	6.00	10.05	16.75
CMN-0105	100	0.0039	77	145	32	2.00	6.55	10.85	18.10
CMN-0090	90	0.0035	39	198	48.5	2.35	7.85	13.00	21.70
CMN-0082	82	0.0032	33	227	51	3.05	9.80	16.70	27.10
CMN-0085	80	0.0031	77	160	28.5	2.70	8.95	14.90	24.80
CMN-0074	80	0.0031	52	193	37	2.55	8.25	13.75	22.95
CMN-0064	64	0.0025	33	267	44.5	2.50	7.80	13.35	21.70
CMN-0062	60	0.0024	47	241	35	2.60	8.70	14.70	24.60
CMN-0053	50	0.0020	40	284	31	2.85	9.45	15.70	26.15
CMN-0048	48	0.0019	38	297	31	3.05	10.20	17.00	28.30
CMN-0040	37	0.0015	39	335	24	3.20	10.65	18.05	30.10
CMN-0035	36	0.0014	33	371	27.5	3.50	11.60	19.30	32.15
CMN-0030	30	0.0012	40	361	18	4.30	13.90	23.20	38.60
CMN-0020	20	0.0008	34	478	14	4.75	15.85	26.40	43.95
CMN-0012	11	0.0004	36	546	6	5.60	18.70	31.20	51.95
CMN-0010	10	0.0004	28	483	2	5.40	17.85	29.85	49.65
CMN-0005	5	0.0002	37	699/470	1	6.30	21.05	35.10	58.45
CMN-0001	1	0.0000	37	699/470	0.8	6.15	19.60	33.40	54.15

* Nylon 6 - Softening temperature: 338°-365°F (170° - 185°C).

Assortments

CMN-9000	3 x 6 piece. One each CMN-2000 through CMN-40 - 22 pieces	\$39.10
CMN-9100	3 x 6 piece. One each CMN-90 through CMN-5 - 13 pieces	43.40
CMN-9200	6 x 12 piece. One each CMN-2000 through CMN-40 - 23 pieces	124.05
CMN-9300	6 x 12 piece. One CMN-90 through CMN-5 - 13 pieces	147.35

Polypropylene Screen Cloth

Offering great strength and stability, polypropylene has the lowest specific gravity (0.91) of any synthetic. Highly resistant to acids and alkalis as well as other chemicals. Polypropylene screen cloth has a melting temperature of 320° to 340°F (160° to 171°C). The standard roll width of 54" is also available and is sold by the linear foot.

Polypropylene

Part No.	Mesh Opening		Thread Diameter Microns	Mesh Count Inch	Open Area %	-A 3" x 6"	-B 6" x 12"	-C 12" x 12"	-D 12" x 24"
	Microns	Inches							
CMP-1000	1000	0.039	500	17.3	44.5	\$1.65	\$4.75	\$7.90	\$13.15
CMP-0500	500	0.019	300	31	35.5	1.70	4.90	7.80	12.45
CMP-0297	297	0.011	215	51	33.5	1.10	3.40	5.80	9.50
CMP-0250	250	0.009	200	56	28.9	1.80	4.95	7.90	12.70
CMP-0149	149	0.005	106	100	34.2	1.85	5.10	8.20	13.10
CMP-0125	125	0.004	100	110	30	2.00	5.50	8.75	14.00
CMP-0105	105	0.004	100	120	24.8	2.15	6.10	9.70	15.55
CMP-0075	75	0.003	90		21	1.55	4.90	8.35	13.55

Assortments

CMP-3A	3" x 6" piece. One CMP-1000 through CMP-0105 - 6 pieces	\$11.15
CMP-4A	6" x 12" piece. One CMP-1000 through CMP-0105 - 6 pieces	31.30

Multi-Purpose Scissors

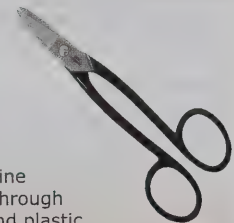
Stainless Steel Fiskars®



These quality right-hand scissors feature stainless steel blades with precision ground and hardened edges for a sharp and longer lifetime. Adjustable screw joint enables the blade tension to be modified to suit the task at hand. Orange fiberglass reinforced plastic handles are durable and comfortable to use.

APS-8.....\$12.95

Jewelers Snips



Jewelers snips are handy for cutting fine wires or snipping through foil, light metals and plastic. Curved blades are formed from double hardened drop forged steel to stay sharp longer. Blade length: 1-3/8". Overall length 7".

APS-01JS.....\$13.50

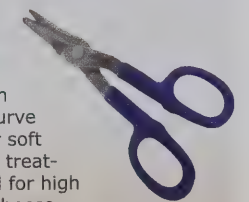
Lightweight Tin Snips



Small and sharp. Lightweight tin snips have plastic coated handles with flip-lock for safety... only 6-1/2" long.

LS-6.....\$23.95

Tin Snips



Head configuration permits smooth curve cutting on hard or soft sheet metal. Heat treated steel tempered for high strength and toughness. Plastic handle grips provide hand comfort. Overall length 7"

CCS-DC7.....\$15.50



Puradisc™ Syringe Filters

Puradisc™ syringe filters are designed for the quick and efficient filtration of samples up to 100 mL volume. The syringe filters are produced from pigment free polypropylene and have standard inlet and outlet Luer connectors. Puradisc™ 4 and Puradisc™ 13 are available with a special tube tip outlet that allows the sample to be accurately dispensed into a micro-vial, eliminating air lock. Sterile options are supplied in a medical-grade blister pack for critical applications.

Devices are available with a choice of membrane or glass microfibre filter media for wide sample compatibility. The media are sealed into the unit without the use of adhesives to eliminate potential sample contamination.

Puradisc 4™

Used for small volume and/or high value sample preparation applications. Features a 4mm diameter for sampling up to 2mL and offers a low hold up volume of less than 10µL to ensure maximum sample recovery.

Puradisc 13™

Used for HPLC (High Precision Liquid Chromatography) and biological sample preparation applications. Features a 13mm diameter for sampling up to 10mL and offers a low hold up volume of less than 25µL to ensure maximum sample recovery.

Puradisc 25™

Used for a variety of applications such as HPLC (High Precision Liquid Chromatography) and biological sample preparation; buffer, salt, ophthalmic and irrigation solutions; tissue cult media and sterils isolation. Features a 25mm diameter for sampling up to 100mL.

General Safety

High pressures can be obtained when using syringes. As a rule the smaller the syringe the higher the pressure that can be generated. For use as a guideline, the following pressures can be obtained by hand with the syringes indicated: 20mL- 30 psi; 10mL- 50 psi; 5mL- 75 psi; 3mL- 100 psi; 1mL 150 psi. Users should determine the pressure they can generate by hand with a specific size syringe and take appropriate safety precautions not to exceed the recommended rating for the device used. If these limitations are exceeded, bursting of the device may occur.

Technical Information			
Housing	Puradisc 4™ - Polypropylene	Puradisc 13™ - Polypropylene	Puradisc 25™ - Polypropylene
Filtration Area	0.2 cm ²	1.3 cm ²	4.2 cm ²
Maximum Pressure	75 psi	75 psi	75 psi
Volume 'Hold Up' with Air Purge	<10 µL	<25 µL	<100 µL
Dimensions	6.2 x 20 mm	16 x 20 mm	28 x 23 mm
Weight	0.55 g (approx)	0.95 g	2.7 g
Volume Throughput	up to 2 mL	up to 10 mL	up to 100 mL
Inlet Connection	Female Luer lock	Female Luer lock	Female Luer lock
Outlet Connection	Male slip Luer/male tube tip	Male slip Luer/male tube tip	Male slip Luer
Sterilization	Autoclave at 121°C (131°C max) at 15 psi for 20 minutes†	Autoclave at 121°C (131°C max) at 15 psi for 20 minutes†	Autoclave at 121°C (131°C max) at 15 psi for 20 minutes†

† Not recommended for Nylon.

Puradisc™ 4mm Syringe Filters

Part No.	Pore Size µm	Material	10	25	50	100
3331-67890402	0.2	NYL	\$15.65	\$37.85	\$73.20	\$141.35
3331-67890404	0.45	NYL	15.65	37.85	73.20	141.35
3331-67840402	0.2	PTFE	15.65	37.85	73.20	141.35
3331-67840404	0.45	PTFE	15.65	37.85	73.20	141.35
3331-677770402	0.2	PVDF	21.00	50.80	98.15	-
3331-677770404	0.45	PVDF	21.00	50.80	98.15	-
3331-67820402	0.2	Polysulfone	15.65	37.85	73.20	141.35
3331-67820404	0.45	Polysulfone	15.65	37.85	73.20	141.35
3331-67880402	0.2	Polypropylene	15.65	37.85	73.20	141.35
3331-67880404	0.45	Polypropylene	15.65	37.85	73.20	141.35

Puradisc™ 13mm Syringe Filters

Part No.	Pore Size µm	Material	10	25	50	100
3331-67771302	0.2	PVDF	\$27.60	\$66.75	\$129.05	-
3331-67771304	0.45	PVDF	27.60	66.75	129.05	-
3331-67841302	0.2	PTFE	20.20	48.90	94.55	\$182.60
3331-67841304	0.45	PTFE	20.20	48.90	94.55	182.60
3331-67891301	0.1	NYL	20.20	48.90	94.55	182.60
3331-67891302	0.2	NYL	20.20	48.90	94.55	182.60
3331-67891304	0.45	NYL	20.20	48.90	94.55	182.60
3331-67841301	0.1	PTFE	20.20	48.90	94.55	182.60
3331-67821302	0.2	Polysulfone	20.20	48.90	94.55	182.60
3331-67821304	0.45	Polysulfone	20.20	48.90	94.55	182.60
3331-67881302	0.2	Polypropylene	20.20	48.90	94.55	182.60
3331-67881304	0.45	Polypropylene	20.20	48.90	94.55	182.60

Puradisc™ 13mm Sterile Syringe Filters

Part No.	Pore Size µm	Material	5	10	25	50
3331-67861301	0.1	NYL	\$13.80	\$26.70	\$64.55	\$124.60
3331-67861302	0.2	NYL	13.80	26.70	64.55	124.60
3331-67911302	0.2	PVDF	13.80	26.70	64.55	124.60
3331-67911304	0.45	PVDF	13.80	26.70	64.55	124.60
3331-67801302	0.2	Polysulfone	13.80	26.70	64.55	124.60
3331-67801304	0.45	Polysulfone	13.80	26.70	64.55	124.60

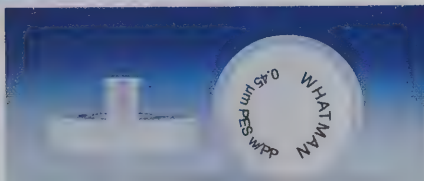
Puradisc™ 25mm Syringe Filters

Part No.	Pore Size µm	Material	5	10	25	50
3331-67502502	0.2	NYL	\$10.85	\$21.00	\$50.70	\$97.95
3331-67502504	0.45	NYL	10.85	21.00	50.70	97.95
3331-6752510	1.0	NYL	10.85	21.00	50.70	97.95
3331-67462502	0.2	PVDF	14.50	28.10	67.95	131.20
3331-67462504	0.45	PVDF	14.50	28.10	67.95	131.20
3331-67842501	0.1	PTFE	10.85	21.00	50.70	97.95
3331-67842502	0.2	PTFE	10.85	21.00	50.70	97.95
3331-67842504	0.45	PTFE	10.85	21.00	50.70	97.95
3331-67842510	1.0	PTFE	10.85	21.00	50.70	97.95
3331-67862502	0.2	Polypropylene	10.85	21.00	50.70	97.95
3331-67862504	0.45	Polypropylene Depth	10.85	21.00	50.70	97.95
3331-67802502	0.2	Polyethersulfone	6.40	12.40	30.00	57.90
3331-67802504	0.45	Polyethersulfone	6.40	12.40	30.00	57.90
3331-67802510	1.0	Polyethersulfone	6.40	12.40	30.00	57.90



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For our full line of Syringes and Luer Fittings.



GD/X Syringe Filters

Whatman GD/X disposable syringe filters are the ideal choice for the preparation of hard-to-filter samples. The syringe filters have a pigment-free polypropylene housing to eliminate sample contamination and contain a unique prefiltration stack of Whatman GMF 150 (graded density) and GF/F glass microfibre media, which allows you to filter even the most difficult samples with less hand pressure. Compared to an unprotected membrane, GD/X syringe filters can process three to seven times more sample volume.

GMF 150 (graded density) and GF/F are produced from 100% borosilicate glass microfibre. The unique, graded density GMF 150 medium has a coarse top layer meshed with a fine layer beneath that retains particles to 1.0 μm . A GF/F filter then retains particles down to 0.7 μm . Below the prefilter stack is the final membrane. This provides exceptionally good loading capacity with fast flow rates and avoids the build up of back pressure often experienced through "blocking" of an unprotected membrane.

Features and Benefits

- 13 mm and 25 mm diameter syringe filters
- 13 mm device for samples up to 10 mL and
- 25 mm device for samples larger than 10 mL
- Sterile options available

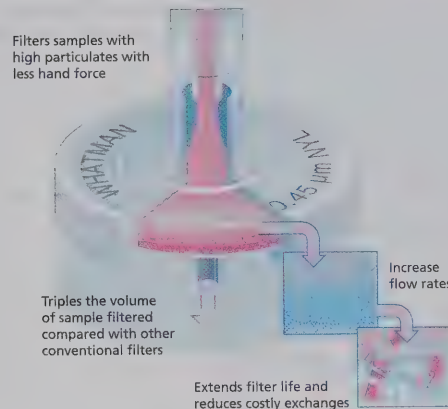
Applications

- Hard-to-filter heavily particulate laden samples
- Content uniformity
- Concentration analysis
- Routine sample preparation
- Food analysis
- Environmental samples
- Composite assay

High pressures can be obtained when using syringes. The smaller the syringe the higher the pressure that can be generated. As a general guide, the following pressures can be obtained by hand with the syringes indicated: 20mL- 30 psi; 10mL- 50 psi; 5mL- 75 psi; 3mL- 100 psi; 1mL- 150 psi. Users should determine the pressure they can generate by hand with a specific size syringe and take appropriate safety precautions not to exceed the recommended rating for the device used. If these limitations are exceeded, bursting of the device may occur.

Technical Information

	GD/X 13 mm	GD/X 25 mm
Housing	Polypropylene (pigment free)	Polypropylene (pigment free)
Filtration Area	1.3 cm ² (13 mm)	4.6 cm ² (25 mm)
Maximum Pressure	100 psi	75 psi
Volume 'Hold Up' Full Housing	0.5 mL	1.4 mL
with Air Purge	50 μL (approx)	250 μL (approx)
Dimensions	21.7 mm x 29.7 mm	21.7 mm x 29.7 mm
Weight	3 g (approx)	3 g (approx)
Flow Direction	Flow should enter from the inlet	Flow should enter from the inlet
Inlet Connection	Female luer lock	Female luer lock
Outlet Connection	Male slip luer	Male slip luer
Sterilization	Autoclave at 121°C (131°C max) at 15 psi for 20 minutes†	Autoclave at 121°C (131°C max) at 15 psi for 20 minutes†
Biosafe	All materials pass USP Class VI	All materials pass USP Class VI
Glass Microfiber	100% borosilicate	100% borosilicate
Prefiltration Media	GMF 150 10 μm : 1 μm GF/F 0.7 μm	GMF 150 10 μm : 1 μm GF/F 0.7 μm



Typical Properties of Binder-free Glass Microfibre Filters

Grade	Particle Retention* Liquid (μm)	Air Flow Rate (s/100 mL/in ²)	Basis Weight (g/m ²)	Thickness (μm)	Wet Burst (psi)	Tensile MD Dry (N/15 mm)
1.6	1.6	4.3	53	260	0.3	5.5
1	1	12	143	675	0.5	6.4
1.2	1.2	6.7	53	260	0.3	6.6
2.7	2.7	2.2	121	675	0.3	6.4

*98% Particle Retention Rating.

GD/X 25mm Syringe Filters - Sterile

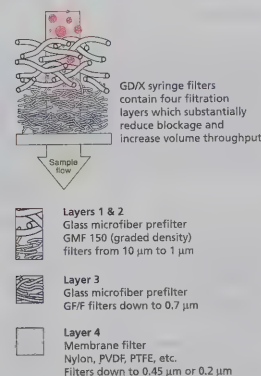
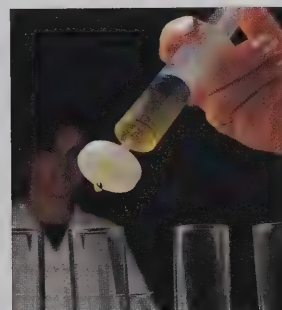
Part No.	Pore Size μm	Membrane	10	25	50	100	150
3331-68972502	0.2	PES	\$23.60	\$58.95	\$114.10	\$220.55	\$319.40
3331-69022504	0.45	GMF	27.70	69.20	133.95	258.95	375.00

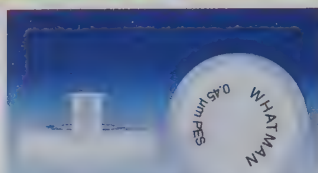
GD/X 25mm Syringe Filters - Non-Sterile

Part No.	Pore Size μm	Membrane	10	25	50	100	150
3331-68721302	0.2	PVDF	\$21.95	\$54.90	\$106.25	\$205.40	\$297.45
3331-68721304	0.45	PVDF	21.95	54.90	106.25	205.40	297.45
3331-68702502	0.2	NYL	27.80	69.50	134.50	260.00	376.55
3331-68702504	0.45	NYL	27.80	69.50	134.50	260.00	376.55
3331-68742502	0.2	PTFE	27.80	69.50	134.50	260.00	376.55
3331-68742504	0.45	PTFE	27.80	69.50	134.50	260.00	376.55
3331-68822516	1.6	GF/A	27.80	69.50	134.50	260.00	376.55
3331-68842510	1.0	GF/B	27.80	69.50	134.50	260.00	376.55
3331-68862512	1.2	GF/C	27.80	69.50	134.50	260.00	376.55
3331-68922515	1.5	934-AH	27.80	69.50	134.50	260.00	376.55
3331-69042502	0.2	PES	27.00	67.45	130.55	252.40	365.55
3331-69042504	0.45	PES	27.80	69.50	134.50	260.00	376.55

GD/X 13mm Syringe Filters - Non Sterile

Part No.	Pore Size μm	Membrane	10	25	50	100	150
3331-68701302	0.2	NYL	\$21.95	\$54.90	\$106.25	\$205.40	\$297.45
3331-68701304	0.45	NYL	21.95	54.90	106.25	205.40	297.45
3331-68721302	0.2	PVDF	21.95	54.90	106.25	205.40	297.45
3331-68721304	0.45	PVDF	21.95	54.90	106.25	205.40	297.45
3331-68741302	0.2	PTFE	21.95	54.90	106.25	205.40	297.45
3331-68741304	0.45	PTFE	21.95	54.90	106.25	205.40	297.45
3331-68761304	0.45	Polysulfone	21.95	54.90	106.25	205.40	297.45
3331-68801302	0.2	CA	21.95	54.90	106.25	205.40	297.45
3331-68821316	1.6	GF/A	21.95	54.90	106.25	205.40	297.45
3331-68841310	1.0	GF/B	21.95	54.90	106.25	205.40	297.45
3331-68861312	1.2	GF/C	21.95	54.90	106.25	205.40	297.45
3331-68881327	2.7	GF/D	21.95	54.90	106.25	205.40	297.45





EasyDisc™ 25mm Syringe Filters

New EasyDisc™ is a high quality microfiltration solution for everyday use in large volume applications. These easy-to-use filters facilitate quick and convenient sample preparation and allow greater throughput without the need for syringe filter replacement in mid-operation. Available in a 0.45 µm

pore size, incorporating a glass fiber pre-filter, EasyDisc™ syringe filters also provide enhanced versatility through a wide array of filtration media.

Features and Benefits

- Innovative design reduces physical exertion and operator fatigue
- Affordable price helps minimize sample preparation costs without jeopardizing operation integrity
- Advanced technology increases filtering volume as much as 300%
- Rigorous testing of each lot ensures product reliability
- ISO-driven manufacturing processes assure consistent quality
- Range of filtration media meets diverse application needs

Typical Applications

HPLC sample preparation, routine qc analysis, content uniformity, removal of protein precipitates, dissolution testing.

Safety

High pressures can be obtained when using syringes. The smaller the syringe the higher the pressure that can be generated. As a general guide, the following pressures can be obtained by hand with the syringes indicated: 20mL- 30 psi; 10mL- 50 psi; 5mL- 75 psi; 3mL- 100 psi; 1mL 150 psi. Users should determine the pressure they can generate by hand with a specific size syringe and take appropriate safety precautions not to exceed the recommended rating for the device used. If these limitations are exceeded, bursting of the device may occur.

Technical Information	
Dimensions	Diameter: 29.7 mm Length: 21.7 mm
Weight	Approximately 3 grams/unit
Filtration Area	4.6 cm ²
Maximum Pressure	75 psi (5.2 bar) at 20°C
Biosafety	All materials pass USP Class VI test for plastics
Materials of Construction	
Housing	Polypropylene
Filtration Media	As specified
Hold up Volume	
Full Housing	~1.0 mL
With Purge	~120 µL
Connectors	
Inlet	Female Luer Lock (FLL)
Outlet	Male Slip Luer (MSL)
Flow Direction	Flow from inlet to outlet (FLL side to MSL)
Sterilization	Can be autoclaved at 121°C once for 20 minutes

Technical Specifications:				
	Proteinaceous / Biological - Samples	General-Aqueous	Non-Aggressive / Organic - (e.g., Alcohols)	Aggressive Organic- (e.g., DMF)
Nylon (NYL)	—	++	+	—
Polyvinylidene fluoride (PVDF)	++	++	+	—
Polytetrafluoroethylene (PTFE)	—	—	++	++
Polyethersulfone (PES)	++	++	+	—
Polypropylene (PP)	—	—	++	++

Easydisc™ 25mm Syringe Filters

Part No.	Pore Size µm	Material	10	25	50	100
3331-67102504	0.45	NYL	\$24.50	\$59.40	\$115.10	\$222.75
3331-67122504	0.45	PVDF	24.50	59.40	115.10	222.75
3331-67142504	0.45	PTFE	24.50	59.40	115.10	222.75
3331-67162504	0.45	Polyethersulfone	24.50	59.40	115.10	222.75
3331-67182504	0.45	Polypropylene	24.50	59.40	115.10	222.75



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UniPrep™ Syringeless Filters

UniPrep™ syringeless filters are preassembled filtration devices for the filtration and storage of laboratory samples. These devices are quick and easy to use and feature a plunger, filter and vial in one unit. They replace syringe-coupled filtration devices with single, disposable units.

UniPrep™ devices consist of two parts: a test tube and a filter-plunger. The design incorporates a pre-filter and a membrane into the tip of the plunger. When the filter plunger is pressed through the liquid placed in the test tube, positive pressure forces the filtrate up into the reservoir of the filter-plunger.

Features and Benefits

- Integral storage vial saves time and minimizes laboratory waste
- Built-in pre-filters mean even difficult samples are quick and easy to prepare
- Choice of membranes for wide sample compatibility

Applications

Sample preparation: difficult-to-filter samples, quick filtration of samples

The UniPrep™ syringeless filter is selected based on compatibility with the sample in use. A UniPrep™ stand is employed to hold the 5ml capacity test tube into which the sample to be filtered has been poured. In manual operation, the filter-plunger, after the tip comes in contact with the liquid, is slowly pushed into the test tube until it stops at the bottom. The UniPrep™ is emptied either by decanting into a sample or auto-sampler vial or by drawing the filtered sample into a syringe for manual injection into an instrument.

UniPrep™ membranes are available for various applications:

- GMF: layered glass microfiber depth filter for use with samples containing aqueous organic solvents
- NYL: naturally hydrophilic membrane for filtration of samples containing aqueous or organic solvents with a pH range of 3-10
- PTFE: chemically inert Teflon® membrane for filtration of samples containing > 50% organic solvent
- PVDF: low protein binding membrane for filtration of samples with aqueous or aqueous/organic solvent composition

Typical Data - UniPrep™

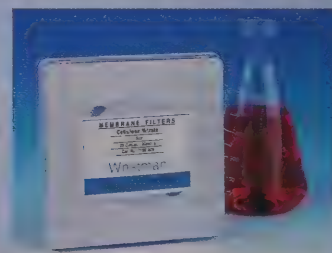
Housing	Polypropylene
Filtration Area	0.3 cm ²
Capacity	1-5 mL
Volume 'Hold Up'	50 µL
Autoclavable	121°C for 20 minutes

Uniprep™ Syringeless Filters

Part No.	Pore Size µm	Filter Media	5	10	25	50
3331-UN113EORG	0.20	PTFE	\$18.25	\$35.35	\$85.55	\$165.40
3331-UN113UORG	0.45	PTFE	18.25	35.35	85.55	165.40
3331-UN113UNYL	0.45	NYL	18.25	35.35	85.55	165.40
3331-UN113EAQU	0.20	PVDF	18.25	35.35	85.55	165.40
3331-UN113UAQU	0.45	PVDF	18.25	35.35	85.55	165.40
3331-UN113ENYL	0.20	NYL	18.25	35.35	85.55	165.40

Benchkote®

Benchkote® is an absorbent, impermeable material designed to protect laboratory surfaces against hazardous spills. The material features a high quality, smooth, absorbent Whatman paper which quickly absorbs liquid spills and a laminated polyethylene layer that prevents flow through to the working surface. After use the sheet is incinerated or disposed of according to local regulations. This makes Benchkote® an excellent product that complies with OSHA Regulation 29CFR 1910.1030 for occupational exposure to blood borne pathogens.





Mini-UniPrep™ Syringeless Filters

Simple, Innovative, and Convenient

The Whatman Mini-UniPrep™ syringeless filters, now with a new durable plastic cap, provide a faster, easier way to remove particulates from samples being prepared for high performance liquid chromatography (HPLC) analysis. The Mini-UniPrep™ lets you prepare samples in one third the time required by other methods. Add up the time savings, plus the money saved from cutting multiple consumables out of the sample preparation process and you'll see huge benefits for your lab. Mini-UniPrep™ is a pre-assembled filtration device consisting of a 0.5ml capacity chamber and a plunger. The plunger contains a filtration membrane at one end and a pre-attached cap/septum at the other. The plunger is pressed through the sample in the outer chamber and positive pressure forces the filtrate into the reservoir of the plunger. Air escapes through the vent hole until the locking ring is engaged providing an air-tight seal. Within seconds the Mini-UniPrep™ can be placed into any approved autosampler for injection into your instrument.

Features and Benefits

- All-in-one filtration process allows to process sample loads in one-third the time
- Wide range of membrane choices from 0.2 and 0.45µm pore sizes to meet specific sample application requirements
- Compatible with most major auto-samplers. Allows for speeding processes
- Fewer consumables required. Lower costs by up to 40 percent.
- Protects samples from UV damage. (Amber only)

Applications

Routine analysis, composite assays, content uniformity, protein precipitation, solubility testing, dissolution testing, sample filtration.

Amber Mini-Prep™ Features and Benefits

- Amber colorant prevents photo degradation of light sensitive samples. Same colorant used in pharmaceutical containers designed to meet USP specifications for light resistance
- Translucent amber chamber and plunger enable easy visual inspection
- Use with any compound that requires protection from light, such as catecholamines or vitamins

Choose the Right Mini-UniPrep™ Filtering Media

Sample Type	Suitable Mini-UniPrep™ Media
Particulate laden liquids	Glass Microfiber (GMF)
Aqueous/organic samples in 3 to 10 pH range	Nylon (NYL)
General filtration media/solvent based samples	Polypropylene (PP)
Chemically aggressive solutions	Polytetrafluoroethylene (PTFE)
Biological samples requiring low protein binding media	Polyethersulfone (PES)
Aqueous/organic solvents—low non-specific protein binding media	Polyvinylidene fluoride (PVDF)
Aqueous/organic solvents—high flow and loading capacity	Polypropylene Depth (DpPP)

Typical Data - Mini-UniPrep™

Dimensions	Equivalent in size to 12 mm x 32 mm vials
Materials of Construction	
Housing and Cap	Polypropylene
Filter Media	As specified
Septa	PTFE coated silicone rubber
Filtration Capacity	0.5 mL
Nominal Force Needed to Compress	Approximately 8 psi (0.6 bar)
Maximum Operating Temperature	120°F (50°C)



Six Position Compressor

Part #	Description	Price
3331-CR0000006	Position Compressor	\$379.60

Mini UniPrep™ Std Cap Syringeless Filters

Part No.	Pore Size µm	Filter Media	10	25	50	100
3331-UN203NPEAQU	0.2	PVDF	\$25.90	\$62.65	\$121.25	\$234.40
3331-UN203NPENYL	0.2	NYL	25.90	62.65	121.25	234.40
3331-UN203NPEORG	0.2	PTFE	25.90	62.65	121.25	234.40
3331-UN203NPEPP	0.2	PP	25.90	62.65	121.25	234.40
3331-UN203NPUAQU	0.45	PVDF	25.90	62.65	121.25	234.40
3331-UN203NPUDPP	0.45	PP	25.90	62.65	121.25	234.40
3331-UN203NPUNYL	0.45	NYL	25.90	62.65	121.25	234.40
3331-UN203NPUORG	0.45	PTFE	25.90	62.65	121.25	234.40
3331-UN203NPUPP	0.45	PP	25.90	62.65	121.25	234.40

Amber Mini UniPrep™ Std Cap Syringeless Filters

Part No.	Pore Size µm	Filter Media	10	25	50	100
3331-UN203APEAQU	0.2	PVDF	\$29.00	\$70.20	\$135.85	\$262.65
3331-UN203APENYL	0.2	NYL	29.00	70.20	135.85	262.65
3331-UN203APEORG	0.2	PTFE	29.00	70.20	135.85	262.65
3331-UN203APEPES	0.2	PES	29.00	70.20	135.85	262.65
3331-UN203APEPP	0.2	PP	29.00	70.20	135.85	262.65
3331-UN203APUAQU	0.45	PVDF	29.00	70.20	135.85	262.65
3331-UN203APUDPP	0.45	PP	29.00	70.20	135.85	262.65
3331-UN203APUGMF	0.45	GMF	29.00	70.20	135.85	262.65
3331-UN203APUNYL	0.45	NYL	29.00	70.20	135.85	262.65
3331-UN203APUORG	0.45	PTFE	29.00	70.20	135.85	262.65
3331-UN203APUPES	0.45	PES	29.00	70.20	135.85	262.65
3331-UN203APUPP	0.45	PP	29.00	70.20	135.85	262.65

Features and Benefits

- Material is very strong, making it tear resistant, wet or dry
- Smooth white surface can be written on with ink or pencil and lies flat
- Suitable for saturation with disinfectant to protect benches where pathogens and other bacteria are present
- Use polyethylene side up to collect deposits without absorption
- Paper side quickly absorbs liquids preventing liquids from going through to the working surface
- Spillages are trapped in the absorbent paper
- Benchkote® can be picked up and burnt very easily after use; the polyethylene layer does not melt or drip but is rapidly consumed in the flames

Applications

- Containing radiochemical spillage and avoiding contamination
- Recovering spillage of expensive materials
- Protecting hard surfaces to lessen impact
- Water or solvent wick for humidity chambers
- Lining of chemical cabinets, laboratory bench drawers and laboratory hoods

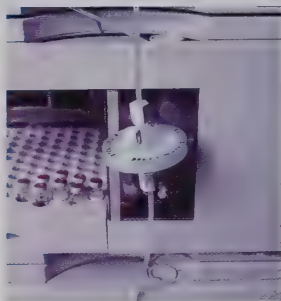
Benchkote®

Part No.	Description	Dimensions	Qty/ Pack	Each	50
3331-2300916	Sheets	46 cm x 57 cm	50	—	\$103.85
3331-2300594	Pads	46 cm x 57 cm	50	—	113.50
3331-2300731	Reel	46 cm x 50 m	1	182.45	—
3331-2300772	Reel	92 cm x 50 m	1	369.35	—

Polydisc™ Filters

Whatman Polydisc™ 50 mm in-line disc filters are designed for larger volume sample filtration in the laboratory, at a pilot plant or in manufacturing. They are extremely versatile and cost effective. Sample volumes up to 1 liter can be filtered with one device. Polydisc™ devices can be used in conjunction with a syringe or connected in-line via stepped hose barbs.

Polydisc™ filters feature a high purity polypropylene housing to maintain sample purity and are available with a choice of filtration media to suit a range of aqueous and organic samples. The devices are autoclavable and sterile options are available.



Polydisc™ AS

The Polydisc™ AS (Aqueous Solution) family of 50 mm filter devices feature a high throughput polyethersulfone membrane, which has low protein binding and no surfactants, developed for use in the pharmaceutical industry. A glass microfiber prefilter extends the life of the membrane and effectively filters heavily contaminated samples. Each Polydisc™ AS device has a sterility cap on the outlet and is sealed in its own "medical grade" clear blister pack, radiation sterilized and secured in a protective shelf pack.

Accepts 6-10mm ID tubing.

Features and Benefits

- Radiation sterilized. No EtO residuals
- Barbed hose connections fit multiple tubing sizes
- Integrity testable (bubble point method)
- Lightweight (11.5 grams); avoids the collapsing of tubing which can be caused by heavy filter devices

Applications

- Tissue culture media
- Reagent preparation
- Particle counting solutions
- Pharmaceutical preparations

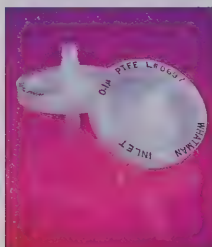
Technical Specifications

Description	Pore Size (µm)	Air Flow Rate (SLPM) 1.0 bar (14.5 psi)	Water Flow Rate* mL/minute @ 0.7 bar (10 psi)
Polydisc™ AS	0.2	—	150
Polydisc™ AS	0.45	—	225
Polydisc™ AS	1.0 (GMF/Nylon)	—	625

*Liquid rating. Retention efficiency in gas streams is significantly higher.

Polydisc™ AS Inline Filters

Part No.	Membrane	Pore Size µm	Each	5	10
3331-67245002	GMF/PES Sterile	0.20	\$11.50	\$53.80	\$100.45
3331-67245045	GMF/PES Sterile	0.45	11.50	53.80	100.45
3331-67245010	GMF/NYL Sterile	1.00	11.50	53.80	100.45



Polydisc™ TF

This device features a PTFE membrane which is ideal for chemically aggressive solutions, reagents and organic solvents. This lightweight unit is particularly suitable for protective vents and for in-line filtration and isolation applications. The 1 µm device features a polypropylene prefilter for use with heavily contaminated samples. Accepts 6-10mm ID tubing.

Features and Benefits

- Solvent resistant membrane
- Chemical resistant housing
- Hydrophobic PTFE membrane
- Autoclavable (multiple)
- Integrity testable (bubble point or water breakthrough pressure in situ methods)
- Biosafe
- Lightweight (11.5 grams); avoids the collapsing of tubing which can be caused by heavy filter devices

Applications

- Pharmaceutical: vents and in-line applications
- Biotech: sterile vents and exhausts for growth environments, in-line sterilization
- Laboratory: clean or sterile gases, solvents, reagents, drying gases
- Electronics: photoresists, solvents, gases for research

Technical Specifications

Description	Pore Size (µm)	Integrity Test Data*				Flow Rates*	
		Methanol		Water		Methanol	Air
		Bubble Point	Breakthrough	Bubble Point	Breakthrough	mL/min at 0.7 bar (10 psi)	SLPM at 0.2 bar (3 psi)
Polydisc™ TF	0.1	1.7	25	3.4	50	200	8
Polydisc™ TF	0.2	0.9	13	2.1	30	400	16
Polydisc™ TF	0.45	0.5	7	1.1	16	700	24
Polydisc™ TF	1	0.2	3	0.3	5	900	30

*Typical values

Polydisc™ TF Inline Filters

Part No.	Membrane	Pore Size µm	Each	5	10
3331-67205001	PTFE	0.10	\$129.30	\$606.00	\$1,131.20
3331-67205002	PTFE	0.20	127.95	599.80	1,119.60
3331-67205045	PTFE	0.45	127.95	599.80	1,119.60
3331-67215010	PP/PTFE	1.00	127.95	599.80	1,119.60



Polydisc™ HD

Excellent flow rate characteristics and ideal for filtering large volumes to 1 liter of aqueous and solvent samples. Polydisc™ HD is available in 5 and 10 µm retention ratings.

Features and Benefits

- All polypropylene unit for aqueous and solvent samples
- Broad solvent compatibility

Applications

- Large volume sample preparation

Polydisc™ SPF

Contains a unique stack of filter media ideal for prefiltration of serum and other hard-to-filter solutions. Contains a glass microfiber and polysulfone membrane filter stack that effectively filters the complex particulates found in serum samples.

Accepts 6-10mm ID tubing.

Applications

- Virology, microbiology and tissue culture laboratories
- Immunoassay methods and diagnostic standards/controls

Technical Specifications - Polydisc™ HD/SPF

Description	Pore Size (µm)	Air Flow Rate (SLPM) 1.0 bar (14.5 psi)	Water Flow Rate* mL/minute 1.0 bar (14.5 psi)
Polydisc™ HD	5	110	1500
Polydisc™ HD	10	140	2200
Polydisc™ SPF	1	—	500

*Liquid rating. Retention efficiency in gas streams is significantly higher.

Polydisc™ HD Inline Filters

Part No.	Membrane	Pore Size µm	Each	5	10
3331-67285050	Polypropylene	5.0	\$12.20	\$57.30	\$106.95
3331-67285100	Polypropylene	10.0	12.2	57.3	106.95

Polydisc™ SPF Inline Filters

Part No.	Membrane	Pore Size µm	Each	5	10
3331-67245000	GMF/GF/Polysulfone	1	\$11.45	\$53.65	\$100.20



Polycap™ AS Capsule Filter

Polycap™ AS is a unique product recommended for filtering aqueous solutions. It combines a glass microfiber (GMF) pre-filter and a nylon membrane, prolonging the life of the filter and allowing larger volumes and difficult samples to be filtered easily.

Features and Benefits

- First layer (GMF) acts as a pre-filter to ensure longer membrane (0.2, 0.45 and 1.0 µm) life and higher filtration efficiency
- Nylon membrane layer is inherently hydrophilic, has low extractables, is bio-safe and has excellent flow rates
- Ultra-clean containing no surfactant or mold release agents
- Bonds thermally fused (no glues, adhesives or extraneous materials)
- Integrity-testable by bubble point, pressure decay or forward flow methods
- Provides highly effective filtration area in a small size
- Autoclavable; some pre-sterilized with gamma radiation
- Manufactured in clean room facilities under ISO quality systems conditions

Applications

- Admixtures
- Biologicals
- Buffers
- Cleaning/rinsing solutions
- Enzymes
- Extemporaneous solutions
- Immunologicals
- Irrigation solutions
- Ophthalmic solutions
- Pharmaceutical
- Reagent preparation
- Salt solutions
- Therapy solutions
- Tissue culture media
- Nutrients
- Vins suspensions



Polycap™ HD Capsule Filter

Polycap™ HD (Heavy Duty) is a well-engineered product that offers high filtration efficiency and excellent filtrate purity because of its materials and methods of manufacture.

Polycap™ HD provides a unique advantage in process applications as its performance characteristics fit between gross filters and microporous membrane filters used for final filtration.

Features and Benefits

- 100% polypropylene filter media, support systems and housings allow usage with broad range of solutions, pH and temperature
- High flow and high retention capacity
- Materials of construction are FDA approved for food contact
- Able to be sterilized by autoclaving with steam at 121°C for 20 minutes
- Manual vent with Luer lock to bleed air from upstream or serve as an injection or sample port
- Available in 0.2, 0.45, 1.0, 5.0 and 10 µm pore sizes and a variety of end-fitting configurations
- Manufactured in a Class 10,000 clean room in an ISO certified manufacturing plant

Polycap™ 36 HD Non-Sterile Capsule Filters

Part No.	Membrane ¹	Pore Size µm	Connections*		Each	5
			Inlet	Outlet		
3331-2610T	PP	0.2	3/8" FNPT	3/8" FNPT	—	\$224.00
3331-2611T	PP	0.45	3/8" FNPT	3/8" FNPT	—	224.00
3331-67073612	PP	0.45	1/4" MNPT	1/2" HB	44.80	—
3331-67033610	PP	1.0	SB	SB	43.60	—
3331-67033650	PP	5.0	SB	SB	43.60	—
3331-2612T	PP	5.0	3/8" FNPT	3/8" FNPT	—	224.00
3331-2613T	PP	5.0	3/8" FNPT	3/8" FNPT	—	224.00
3331-67033611	PP	10.0	SB	SB	43.60	—
3331-2614T	PP	10.0	3/8" FNPT	3/8" FNPT	—	224.00
3331-67033621	PP	20.0	SB	SB	43.60	—

¹ PP = Polypropylene

* SB: Stepped barb for 6–10 mm 1/4"–3/8" tubing

1/2" SB: Stepped barb for 10–12 mm 3/8"–1/2" tubing

HB: Hose Barb

Technical Specifications

Housing	Polypropylene
Vent	On inlet
Pre-filter	Glass microfiber double laminated with polyolefin monofilament non-woven
Membrane	Nylon
Support System	Polypropylene
Sealing	Heat-fused
Maximum Pressure	60 psi (4.1 Bar)
Non-Pyrogenic	LAL tested, non-reactive
Biosafety	Materials pass USP Class VI
Sterilization	Capsules are autoclavable at 121°C for 20 minutes (maximum temperature is 132°C). However, an integrity test should be performed after autoclaving.
Filtration Area	36 mm Capsule: 400 cm ² (62 in ²);
Water Bubble Point (Typical)	0.2 µm Membrane: 2.9 Bar (42 psi);

Polycap™ 36 AS Capsule Filters

Part No.	Membrane	Prefilter ¹	Pore Size µm	Connection		Sterile	Qty.	Each
				Inlet	Outlet			
3331-67053602	NYL	GMF	0.2	SB	SB	Yes	1	\$45.00
3331-67053604	NYL	GMF	0.45	SB	SB	Yes	1	45.00
3331-67053610	NYL	GMF	1.0	SB	SB	Yes	1	45.00
3331-67083602	NYL	GMF	0.2	1/2" SB	1/2" SB	Yes	1	45.00
3331-67083604	NYL	GMF	0.45	1/2" SB	1/2" SB	Yes	1	55.00
3331-67093602	NYL	GMF	0.2	1/2" HB	SB	Yes	1	44.90
3331-2606T	NYL	GMF	0.2	3/8" FNPT	3/8" FNPT	No	5	291.65
3331-2607NS	NYL	GMF	0.45	SB	SB	No	5	274.75
3331-2608NS	NYL	GMF	1.0	SB	SB	No	5	274.75

1 GMF = Glass microfibre prefilter

SB = Stepped barb for 6–10 mm 1/4"–3/8" tubing

1/2" SB = Stepped barb for 10–12 mm 3/8"–1/2" tubing

FNPT = Female National Pipe Thread

Applications

- Clean air and gas equipment
- Cosmetics and personal care products
- Food and beverage
- General fine filtration
- Inks and pigments
- Pharmaceutical
- Photographic emulsions and make-up water
- Pre-filtration for RO/UF/MF membranes
- Sample preparations
- Semiconductor and magnetic media
- Solvents, buffers, and reagents

Technical Specifications

Housing	Polypropylene
Vent	On inlet
Filter Media	Polypropylene
Support System	Polypropylene
Biosafety	Materials pass USP Class VI
Filtration Area	36 mm Capsule: 400 cm ² (62 in ²); 75 mm Capsule: 820 cm ² (127 in ²);
Sterilization	Capsules autoclavable at 121°C for 20 minutes (max. temp. is 132°C)
Non-pyrogenic	LAL tested, non-reactive
Maximum Pressure	4.1 Bar (60 psi)

Polycap™ 75 HD Non Sterile Capsule Filters

Part No.	Membrane ¹	Pore Size µm	Connections*		Each	5
			Inlet	Outlet		
3331-2710	PP	0.2	1/2" HB	1/2" HB	—	\$293.30
3331-2710T	PP	0.2	3/8" FNPT	3/8" FNPT	—	293.30
3331-2711T	PP	0.45	3/8" FNPT	3/8" FNPT	—	293.30
3331-67037510	PP	1.0	1/2" SB	1/2" SB	62.00	—
3331-67037550	PP	5.0	1/2" SB	1/2" SB	62.00	—
3331-2712	PP	5.0	1/2" HB	1/2" HB	—	293.30
3331-2712M	PP	5.0	1/4" MNPT	1/4" MNPT	—	293.30
3331-2712T	PP	5.0	3/8" FNPT	3/8" FNPT	—	293.30
3331-2713	PP	5.0	1/2" HB	1/2" HB	—	293.30
3331-2713T	PP	5.0	3/8" FNPT	3/8" FNPT	—	293.30
3331-2714	PP	10.0	1/2" HB	1/2" HB	—	293.30
3331-2714T	PP	10.0	3/8" FNPT	3/8" FNPT	—	293.30
3331-67037511	PP	10.0	1/2" SB	1/2" SB	—	293.30
3331-67037521	PP	20.0	1/2" SB	1/2" SB	62.00	—

¹ PP = Polypropylene

* SB: Stepped barb for 6–10 mm 1/4"–3/8" tubing

1/2" SB: Stepped barb for 10–12 mm 3/8"–1/2" tubing

HB: Hose Barb

MNPT: Male National Pipe Thread

FNPT: Female National Pipe Thread



Polycap™ TF Capsule Filters

Polycap TF filter devices are among the finest disposable encapsulated filters. These capsules are made with durable, hydrophobic polytetrafluoroethylene (PTFE) membranes in a polypropylene housing and are designed for use with organic solvents and chemically aggressive solutions.

Features and Benefits

- Resistant to most solvents, autoclavable and integrity-testable
- Available in 0.05, 0.1, 0.2, 0.45 and 1.0 µm pore sizes
- 0.05 µm capsules designed for "ultra clean" applications; 1.0 µm used for extended life and filtration of highly contaminated solutions
- Able to be sterilized by autoclaving with steam or EtO
- Manufactured under clean conditions in a Class 10,000 clean room and ISO quality system

Applications

- Venting
- In-line filtration
- Isolation
- Electronics
- Pharmaceutical
- Biotech
- Other uses
- Laboratory

Polycap™ 36 TF Non-Sterile Capsule Filters

Connections*							
Part No	Membrane ²	Prefilter ¹	Pore Size	Inlet	Outlet	Qty.	Price
3331-67003602	PTFE	—	0.2	SB	SB	1	\$71.30
3331-67003610	PTFE	PP	1.0	SB	SB	1	713.30
3331-67103602	PTFE	—	0.2	1/2" SB	1/2" SB	1	64.65
3331-67103604	PTFE	—	0.45	3/8"-1/2" SB	1/2" SB	1	64.65
3331-67113601	PTFE	—	0.1	1/4" MNPT	SB	1	71.30
3331-67113602	PTFE	—	0.2	1/4" MNPT	SB	1	71.30
3331-67113604	PTFE	—	0.45	1/4" MNPT	SB	1	71.30
3331-2601T	PTFE	—	0.2	3/8" FNPT	3/8" FNPT	5	323.30
3331-2602S	PTFE	—	0.45	1.5" Sanitary	1.5" Sanitary	5	323.30
3331-2603T	PTFE	PP	1.0	3/8" FNPT	3/8" FNPT	5	323.30

¹PP = Polypropylene prefilter

²PTFE = Polytetrafluoroethylene

*SB = Stepped barb for 6-10 mm 1/4"-3/8" tubing

1/2" SB = Stepped barb for 10-12 mm 3/8"-1/2" tubing

MNPT = Male National Pipe Thread

FNPT = Female National Pipe Thread



Carbon Cap™ Capsule Filter

This filter capsule is suitable for adsorption of organics from air and removal of color, organics and chlorine from water. Carbon Cap™ is a capsule filter that is filled with high-purity, high-efficiency, acid-washed, granular-activated carbon and a pleated HEPA filter. It is made specifically to meet the requirements for continuous column percolation purification processes.

Features and Benefits

- Carbon acts as an adsorption media
- Pleated glass microfiber filter structure
- Retains 99.97% of particles greater than 0.3 µm
- Large surface area of activated carbon for effective operation
- Two sizes of capsules available to suit your specific application

Applications

- Water, chemical and reagent purification
- Removes noxious odors, oil mists and contaminants
- Compressed air lines and vacuum pumps
- Instrument outlet exhausts
- Eliminates a potential health hazard from the workplace

Technical Specifications

Housing	Polypropylene
Filter Media	Activated Carbon with a Pleated HEPA Cartridge
Support System	Polypropylene
Sealing	Heat-fused
Maximum Pressure	60 psi (4.1 Bar)
Surface Area (Activated Carbon)	Carbon Cap 75 Capsule: 26,000 m ² ;
	Carbon Cap 150 Capsule: 82,000 m ²

Technical Specifications

Housing	Polypropylene
Membrane	PTFE
Vent	On inlet
Support System	Polypropylene
Sealing	Heat-fused
Maximum Pressure	60 psi (4.1 Bar)
Flow Direction	Supported bi-directionally. Certain applications may require orientation, i.e., vents.
	Reverse flow only for low-pressure applications.
Biosafety	Materials pass USP Class VI
Sterilization	May be autoclaved at 121°C for 20 minutes (maximum 132°C). Multiple autoclave cycles are possible. However, the responsibility for reuse is with the operator. The device should be protected from cross contamination. An integrity test should be performed after autoclaving. Compatible with EtO sterilization.
	36 mm Capsule: 500 cm ² (77 in ²);
Filtration Area	75 mm Capsule: 1,000 cm ² (155 in ²);
	0.1 µm Membrane: 1.7 Bar (25 psi);
Methanol	0.2 µm Membrane: 0.9 Bar (13 psi);
	0.45 µm Membrane: 0.5 Bar (7 psi);
Bubble Point	1.0 µm Membrane: 0.2 Bar (3 psi)

Polycap™ 75 TF Non-Sterile Capsule Filters

Connections*							
Part No	Membrane ²	Prefilter ¹	Pore Size	Inlet	Outlet	Qty.	Each
3331-67007501	PTFE	—	0.1	SB	SB	1	\$93.40
3331-67007502	PTFE	—	0.2	SB	SB	1	93.40
3331-67007504	PTFE	—	0.45	SB	SB	1	93.40
3331-67007510	PTFE	PP	1.0	SB	SB	1	93.40
3331-67017510	PTFE	PP	1.0	1/2" SB	1/2" SB	1	93.40
3331-67107502	PTFE	—	0.2	1/2" SB	1/2" SB	1	93.40
3331-67107504	PTFE	—	0.45	1/2" SB	1/2" SB	1	83.65
3331-67117502	PTFE	—	0.2	1/4" MNPT	SB	1	93.40
3331-67117504	PTFE	—	0.45	1/4" MNPT	SB	1	93.40
3331-67117505	PTFE	—	0.05	1/4" MNPT	SB	1	103.65
3331-2700M	PTFE	—	0.1	1/4" MNPT	1/4" MNPT	5	418.40
3331-2700T	PTFE	—	0.1	3/8" FNPT	3/8" FNPT	5	418.40
3331-2702M	PTFE	—	0.2	1/4" MNPT	1/4" MNPT	5	418.40
3331-2702T	PTFE	—	0.2	3/8" FNPT	3/8" FNPT	5	418.40
3331-2703T	PTFE	—	0.45	3/8" FNPT	3/8" FNPT	5	418.40

¹PP = Polypropylene prefilter

²PTFE = Polytetrafluoroethylene

*SB = Stepped barb for 6-10 mm 1/4"-3/8" tubing

1/2" SB = Stepped barb for 10-12 mm 3/8"-1/2" tubing

MNPT = Male National Pipe Thread

FNPT = Female National Pipe Thread

Carbon Cap™

Part No.	Description	Each
3331-67047500	Carbon Cap 75	\$62.00
3331-67041500	Carbon Cap 150	82.70



Solid Phase Extraction Products (SPE)

Solid phase extraction is a chromatographic technique used to prepare samples for subsequent analysis by removing interfering substances that may be present. This is done either by retaining the substance of interest and washing off everything else or by retaining the interfering substances and eluting the product of interest.

These Whatman SPE (solid phase extraction) devices are designed to concentrate or isolate analytes from complex sample matrices. Available with a variety of packing media, these devices offer the advantage of working with different types of interactions between the sample components, sorbent and suitable eluent. The polarity (polar, nonpolar) or

charge (anion, cation) of the analyte of interest will determine the proper choice of sorbent and solvent.

These have a silica-based chemistry and are available in several configurations. Column capacities include 3, 6 and 12 mL size columns and a cartridge format for use with a syringe is also available. Whatman SPE devices contain high quality sorbent for LC chromatographers.

Applications

- Isolate analytes from complex sample matrices
- Remove interfering substances in order to prepare samples for subsequent analysis
- Drug metabolites in biological fluids
- Food analysis
- Environmental analysis

Sample Drying Device

A sample drying device is available for removal of water from organic extracts. It attaches to the male Luer outlet of a syringe in which the organic sample extract has been collected. Traces of water are removed as the sample is pushed through the drying device into a collection vial.

Solid Phase Extraction - Extraction Columns

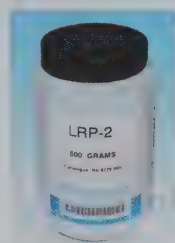
Part No.	Volume	Sorbent	Pack	Price
3331-6803-0505	500 mg/3 mL	Octadecyl Silane - 14% of Carbon load, End Capped	50	\$115.45
3331-6803-0507	500 mg/6 mL	Octadecyl Silane - 18% of Carbon load, End Capped	30	74.40
3331-6803-1205	500 mg/3 mL	Octyl Silane - 8.5% of Carbon load, End Capped	50	115.45
3331-6803-1809	1000 mg/12 mL	Florisil®	20	68.45
3331-6803-2005	500 mg/3 mL	Strong Cation exchanger—aromatic benzene sulfonic acid functional groups	50	142.40
3331-6803-2605	500 mg/3 mL	Strong Anion exchanger—quaternary amino groups (-NR3+)	50	142.40

Solid Phase Extraction - Cartridges

Part No.	Volume	Sorbent	Pack	Price
3331-6804-0405	500 mg/unit	Octadecyl Silane - 14% of C load	50	\$142.30
3331-6804-0505	500 mg/unit	Octadecyl Silane - 18% of C load	50	142.30

Sample Drying Device

Part No.	Description	Pack	Price
3331-6805-8020	Sodium Sulfate - 0.45 micron - PP filter & tube tip 1.5g	50	\$99.80



Bulk Silica NEW Purasil™ 60Å Silica Gel Silica Gel Media for Flash

Chromatography

Whatman Purasil™ high purity silica gel provides an excellent separation medium for flash chromatography purification of target molecules. Narrow particle size distribution and minimal fines enable fast separations with no loss of chromatographic performance.

Features and Benefits

- High resolution
- Excellent flow rates
- Direct scalability

Technical Information

Iron Content	<0.02%
Chloride Content	<0.10%
Loss on Drying	<7%
pH (10% suspension)	7 ± 0.5
Pore Volume	60-80 mL/g
Surface Area	500-600 m ² /g

Purasil™ Silica 60Å Gel Media

Part No.	Product	Dimensions	Price
3331-4745010	230-400 mesh (38-63 µm)	1 kg	\$139.50
3331-4746010	70-230 mesh (63-210 µm)	1 kg	139.50

Whatman® Qualitative & Quantitative Filter Papers

Qualitative

Grade 1: 11µm

The most widely used filter paper for routine applications with medium retention and flow rate. Extended range of sizes includes 10mm to 500mm diameter circles and 460mm x 570mm sheets. (Special Order)

Grade 2: 8µm

Slightly more retentive than Grade 1 with a corresponding increase in filtration time (i.e., slightly slower filtration speed). More absorbent than Grade 1.

Grade 4: 20-25µm

Extremely fast filtering with excellent retention of coarse particles and gelatinous precipitates such as ferric hydroxide and aluminium hydroxide. Very useful as a rapid filter for routine cleanup of biological fluids or organic extracts during analysis. Used when high flow rates in air pollution monitoring are required and the collection of fine particles is not critical.

Quantitative

Grade 40: 8µm

The classic general purpose ashless filter paper with medium speed and retention. Typical applications include gravimetric analysis for numerous components in cements, clays, iron and steel products; as a primary filter for separating solid matter from aqueous extracts in general soil analysis, quantitative determination of sediments in milk and as a pure analytical grade clean-up filter for solutions prior to AA spectro-photometry. Used also as a high purity filter in the collection of trace elements and radionuclides from the atmosphere.

Grade 41: 20-25µm

The fastest ashless filter paper, recommended for analytical procedures involving coarse particles or gelatinous precipitates (e.g., iron or aluminium hydroxides). Also used in quantitative air pollution analysis as a paper tape for impregnation when determining gaseous compounds at high flow rates. This filter is also available in the Whatman Disposable Filter Funnel. This is a convenient, disposable 47mm filter funnel with a 250mL capacity. The 47mm Grade 41 filter can be easily removed for further analysis or culturing.

Grade 44: 3µm

Thin version of Grade 42 retaining very fine particles but with lower ash weight per sample and almost twice the flow rate as Grade 42.



Go to www.smallparts.com

For Pricing information on our extensive selection of Qualitative and Quantitative Filter Papers.

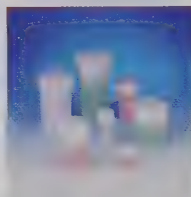


Sample Vials with Captive Closure

Cylindrical, low-density polypropylene vials with friction-fit, captive closures open and close with a flick of your thumb. Suitable for many applications.

Sample Vials with Captive Closure

Part No.	Description	Each	Bag of 3	Bag of 6
3232-H175700000	Sample Vials 0.273 ml	\$3.50	\$6.25	\$11.50
3232-H175710000	Sample Vials 1.48 ml	3.90	6.85	12.50
3232-H175720000	Sample Vials 1.85 ml	4.30	7.55	13.75
3232-H175730000	Sample Vials 5.0 ml	4.70	8.20	15.00
3232-H175740000	Sample Vials 7.39 ml	4.95	8.70	16.00



Sample Vials Screw on Cap

Useful as sample or weighing bottles, or for storing liquids or solids. Heavy walled, injection molded, polyethylene jars are easy to clean. Screw cap design features a leak proof inner seal.

Sample Vials with Screw On Cap

Part No.	Description	Each	Bag of 3	Bag of 6
3232-H178700000	Sample Vials 5cc	\$4.75	\$11.70	\$21.30
3232-H178710000	Sample Vials 10cc	4.70	11.90	21.90
3232-H178720000	Sample Vials 30cc	6.40	15.80	28.95
3232-H178740000	Sample Vials 90cc	7.15	17.70	32.40
3232-H178750000	Sample Vials 120cc	7.15	17.70	32.40
3232-H178760000	Sample Vials 180cc	7.96	19.06	34.50

Low Density Polyethylene Wash Bottles & Wash Bottle Carrier



Precisionware® LDPE Narrow Mouth Bottles

Part No.	Description	Each	Bag of 6	Bag of 12
3232-F106210015	Bottles 125 ml	\$1.75	\$9.50	\$15.25
3232-F106210016	Bottles 250 ml	2.00	11.50	17.50
3232-F106210007	Bottles 500 ml	3.00	14.50	23.50
Part No.	Description	Each	Bag of 3	Bag of 6
3232-F106210008	Bottles 1000 ml	\$4.25	\$13.15	\$21.25

Precisionware® LDPE Wide Mouth Bottles

Part No.	Description	Each	Bag of 3	Bag of 6
3232-F106260005	Bottles 125 ml	\$3.60	\$9.25	\$17.00
3232-F106260006	Bottles 250 ml	5.00	12.95	22.75
Part No.	Description	Each	Bag of 2	Bag of 4
3232-F106260007	Bottles 500 ml	\$9.95	\$17.50	\$32.00
3232-F106260018	Bottles 1000 ml	9.00	16.40	29.25

Wash Bottle Carrier

Part No.	Description	List Price
3232-F116400001	Wash Bottle Carrier	\$28.30



Polypropylene Wide Mouth Bottle

Choose Precisionware® Polypropylene Wide Mouth Bottles for pharmaceutical or similar packaging of both liquid and dry materials. Bottles are Boston round in style, water-clear and molded from FDA compliant material. Matched polypropylene caps have a valve-seal design for a perfect, leak proof fit. Inner bottle surfaces are smooth and rounded

for easy cleaning and thorough emptying. Underside of bottle lists volume, material and includes an indexing notch. Autoclavable 121°C (250°F) Do not autoclave with caps in place.

Precisionware® Polypropylene Wide Mouth Bottles

Part No.	Description	Bag of 3	Bag of 6	Bag of 12
3232-F106320003	Bottles 30 ml	\$2.60	\$6.75	\$12.50
3232-F106320004	Bottles 60 ml	2.85	7.00	13.00
3232-F106320005	Bottles 125 ml	3.95	10.20	18.25
3232-F106320006	Bottles 250 ml	7.29	15.00	27.25
3232-F106320007	Bottles 500 ml	12.10	21.50	38.75
Part No.	Description	Each	Bag of 3	Bag of 6
3232-F106320008	Bottles 1000 ml	\$6.25	\$17.60	\$33.50



High-Density Polyethylene Wide Mouth Bottles

Wide Mouth Bottles for easy Filling and Pouring Rigid leak proof design with easy to fill, wide mouth. These high-density polyethylene bottles with polypropylene closures are ideal for packaging and storing of liquids and solids.

Precisionware® HDPE Wide Mouth Bottles

Part No.	Description	Each	Bag of 3	Bag of 6
3232-F106250005	Bottles 125 ml	\$3.50	\$9.10	\$15.75
3232-F106250006	Bottles 250 ml	5.00	12.60	22.25
Part No.	Description	Each	Bag of 2	Bag of 4
3232-F106250007	Bottles 500 ml	\$10.00	\$18.00	\$32.00
3232-F106250018	Bottles 1000 ml	9.00	16.40	29.25



Dispensing Drop Bottles

The sealer cap on these low density polyethylene dispenser bottles snap on easily and continues to hold a tight seal even after repeated use. Tip opening is .76mm (.030").

Dispensing Drop Bottles

Part No.	Description	Each	Bag of 6	Bag of 12
3232-F116370012	1/2 oz	\$1.50	\$5.75	\$10.50
3232-F116370001	1 oz	1.50	6.00	11.00
3232-F116370002	2 oz	1.60	6.80	12.50
3232-F116370004	4 oz	2.75	11.20	20.50
3232-F116370006	6 oz	2.75	11.20	20.50
3232-F116370008	8 oz	3.15	13.30	24.50
3232-F116370016	16 oz	4.25	17.25	31.50

Safety Labeled Wash Bottles Variety Six Pack Wide Mouth



Consists of one 500 ml (16 oz) bottle each of: Water, Acetone, Methanol, Isopropanol, Toluene, and Ethanol.

Safety Labeled Wash Bottles - Variety Six Pack

Part No.	Description	Price
3232-F116460000	500ml (16oz) Variety 6 Pack	\$23.50

Frigimat® Cub-Dry Ice Maker

This inexpensive dry ice maker is fast and safe. It works at low pressure and can produce a block of dry ice that weighs 250 to 350 grams in approximately 4 to 5 minutes. The dry ice can be easily viewed by the translucent polycarbonate body and attaches to a liquid CO₂ cylinder (Each 50lb. cylinder makes from 10-16 blocks of dry ice). The ice maker opens without clamps or screws. The lightweight body is never as cold as the dry ice, even when filled, allowing safe transport of the unit and contents around the lab. A rugged nickel plated "pigtail" connects the Frigimat® Cub dry ice maker to the LCO₂ cylinder valve which is used to regulate gas flow. The system incorporates multiple pressure relief safeguards



Note: Please wear safety glasses and gloves.

Frigimat® Cub Dry Ice Maker

Part No.	Description	Each
3232-F388740000	Dry Ice Maker	\$299.00

Mini-Sieve™ Micro sieve set for hand held use in lab or field

This micro sieve set consists of a stack of four interchangeable screen holding sections, a catch pan, a cover and four screen retaining rings. All parts are molded of polypropylene. Sections are friction-fit and easy to assemble and take apart for sample retrieval. Sorting parameters can be changed by exchanging the removable phosphor-bronze mesh inserts, (eight included, one each: 25, 35, 45, 60, 80 120, 170 and 230 standard mesh). Each holding section is 51mm (2") I.D. x 29mm (1-1/8") high, and holds about 60cc. Dimensions of the assembled Mini-Sieve™ Micro Sieve set with pan and cover are 164mm (6-7/16") high x 73mm (2-7/8") maximum diameter.



Porous Polyethylene- Tubes* (Fits Schedule 40 PVC Fittings)

Part No.	SCH 40	O.D.	Wall	Average Pore Size	3"	6"	12"	24"	36"	48"
PPET-20/08	1/2"	0.840"	0.080"	20-40µm	\$8.85	\$14.75	\$24.60	\$40.95	\$51.20	\$58.65
PPET-20/16	1"	1.290"	0.125"	20-40µm	8.85	14.75	24.60	40.95	51.20	66.10
PPET-65/08	1/2"	0.840"	0.080"	80-120µm	7.65	12.75	21.30	35.50	44.35	57.05

Micro Sieve Set

Part No.	Description	Each
3232-F378451000	Micro Sieve Set	\$93.00
3232-F378460000	Additional Mesh Inserts	68.00

Ohaus® Adventurer™ Pro

Precision balances are the perfect choice for users who demand high performance in a dependable, easy-to-use workhorse balance. Precision balances are ideal for general laboratory, industrial and educational applications requiring multiple weighing units and are the economical way to weigh with precision.



Ohaus® Adventurer™ Pro

Part No.	Capacity	Readability	Each
2284-AV53	51 g	0.001 g	\$765.00
2284-AV212	210 g	0.01 g	655.00
2284-AV412	410 g	0.01 g	735.00
2284-AV811	810 g	0.1 g	595.00
2284-AV812	810 g	0.01 g	845.00
2284-AV2101	2100 g	0.1 g	655.00
2284-AV4101	4100 g	0.1 g	735.00
2284-AV8100	8100 g	1 g	845.00
2284-AV8101	8100 g	0.1 g	595.00



Ohaus® Voyager™ Pro Balances

The Voyager™ Pro Series represents the summit of balance design and application performance. Voyager Pro makes all operations from basic weighing to the most advanced applications logical, intuitive, and easy to use. Voyager Pro features state of the art weighing technologies and wraps that performance into an ultra simple and innovative graphical user interface. The Software includes scroll down menus for quick navigation and the onscreen text prompts to guide you through application modes. Voyager Pro's high-resolution display is easy to

view and customizable to display only the information you want. Today's environment demands more than a standard balance, and Voyager Pro delivers. Each scale can be used with weighing and mixing disposable containers.

Ohaus Voyager Pro Analytical Balances

Part No.	Capacity	Readability	Each
2284-VP64CN	62 g	0.1 mg	\$2,463.73
2284-VP114CN	110 g	0.1 mg	2,618.80
2284-VP213CN	210 g	0.001 g	2,097.62
2284-VP214CN	210 g	0.1 mg	2,928.91
2284-VP413CN	410 g	0.001 g	2,338.83
2284-VP612CN	610 g	0.01 g	2,041.62
2284-VP613CN	610 g	0.001 g	2,575.73
2284-VP2102CN	2100 g	0.01 g	2,097.62
2284-VP4101CN	4100 g	0.1 g	1,890.88
2284-VP4102CN	4100 g	0.01 g	2,338.83
2284-VP6101CN	6100 g	0.1 g	2,041.62
2284-VP6102CN	6100 g	0.01 g	2,575.73
2284-VP8101CN	8100 g	0.1 g	2,192.39
2284-VP214DCN	100 g / 210 g	0.1 mg / 1 mg	2,666.17
2284-VP413DCN	100 g / 410 g	0.001 g / 0.01 g	2,097.62
2284-VP4102DCN	1000 g / 4100 g	0.01 g / 0.1 g	2,097.62

*Prices Subject to change



Ohaus® Voyager™ Pro Bench Balances

Ohaus® Voyager™ Pro's advanced applications simplify complex laboratory measurements and help reduce errors in manual calculations.

Ohaus Bench Voyager Pro

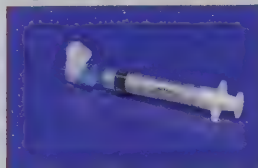
Part No.	Capacity	Readability	Each
2284-VP413CN	410 g	0.001 g	\$2,650.00
2284-VP612CN	610 g	0.01 g	2,315.00
2284-VP2102CN	2100 g	0.01 g	2,380.00
2284-VP4101CN	4100 g	0.1 g	2,145.00
2284-VP4102CN	4100 g	0.01 g	2,650.00
2284-VP6101CN	6100 g	0.1 g	2,315.00
2284-VP6102CN	6100 g	0.01 g	2,920.00
2284-VP8101CN	8100 g	0.1 g	2,485.00
2284-VP413DCN	100 g / 410 g	0.001 g / 0.01 g	2,380.00
2284-VP4102DCN	1000 g / 4100 g	0.01 g / 0.	



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For a complete selection of Laboratory Products.

Monoject® Magellan™ Safety Needle & Syringe Combination



Features:

- Latex free.
- Needle-based safety technology.
- Intuitive, one-handed operation.
- Ultra Sharp, tri-beveled, anti-coring needle.
- Needles "pre-attached" to syringe.
- Extended syringe finger flanges.
- Sterile

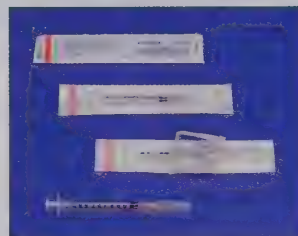
Monoject® Needle & Syringe Combination

Part Number	Description	25	50	100
MJSSC-032001	3cc Syringe-20 Gauge x 1"	\$15.30	\$28.80	\$54.00
MJSSC-032015	3cc Syringe-20 Gauge x 1 1/2"	15.30	28.80	54.00
MJSSC-032101	3cc Syringe-21 Gauge x 1"	15.30	28.80	54.00
MJSSC-032115	3cc Syringe-21 Gauge x 1 1/2"	15.30	28.80	54.00
MJSSC-032201	3cc Syringe-22 Gauge x 1"	15.30	28.80	54.00
MJSSC-032215	3cc Syringe-22 Gauge x 1 1/2"	15.30	28.80	54.00
MJSSC-032301	3cc Syringe-23 Gauge x 1"	15.30	28.80	54.00
MJSSC-032501	3cc Syringe-25 Gauge x 1"	15.30	28.80	54.00
MJSSC-062101	6cc Syringe-21 Gauge x 1"	17.00	32.00	60.00
MJSSC-062115	6cc Syringe-21 Gauge x 1 1/2"	17.85	33.60	63.00
MJSSC-062215	6cc Syringe-22 Gauge x 1 1/2"	17.85	33.60	63.00
MJSSC-031801	3cc Syringe-18 Gauge x 1"	15.30	28.80	54.00
MJSSC-061801	6cc Syringe-18 Gauge x 1"	17.85	33.60	63.00

Monoject® Softpack Disposable Sterile Syringes

Features:

- Bold dual graduations: 35cc and 20cc in 1 cc increments 35cc also offers 1 oz. In 1/4 oz. increments.
- Bold dual graduations: 60cc in 5cc increments and 2 oz. In 1/4 oz. increments.
- Tip cap included.
- Shippable cartons.
- Sterile.



Monoject® 20cc SoftPack Sterile Syringes

Part No.	Description	Qty/Case	10	25	100
SPSY-20CCA	20cc Regular Luer Tip	160	\$5.50	\$12.90	\$48.30
SPSY-20CCB	20cc Luer Lock Tip	160	5.50	12.90	48.30

Monoject® 35cc SoftPack Sterile Syringes

Part No.	Description	Qty/Case	10	25	100
SPSY-35CCA	35cc Regular Luer Tip	160	\$6.50	\$15.25	\$57.20
SPSY-35CCB	35cc Luer Lock Tip	160	6.50	15.25	57.20
SPSY-35CCC	35cc Catheter Tip	160	6.50	15.25	57.20

Monoject® 60cc SoftPack Sterile Syringes

Part No.	Description	Qty/Case	10	25	100
SPSY-60CCA	60cc Regular Luer Tip	120	\$7.10	\$16.70	\$62.60
SPSY-60CCB	60cc Luer Lock Tip	150	5.70	13.40	50.10
SPSY-60CCC	60cc Catheter Tip	120	7.10	16.70	62.60
SPSY-60CCD	60cc Luer Lock Tip Wider Flanges	150	7.10	16.70	62.60



Monoject® Sharps Containers

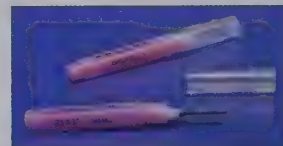
Features

- Polished viewing windows on four sides.
- Translucent colors with lead-free pigments containing no heavy metals.
- Clear lid with extra-wide butterfly closure.
- Needle removal notches.
- Can be autoclaved or incinerated.

Monoject® Sharps Containers

Part No.	Description	Dimensions	Each	10
SHPC-MJ01	4 Qt. Red, Small Container	6.75" W x 10.56" L x 5.64" H	\$3.15	\$29.40
SHPC-MJ02	8 Qt. Red, Medium Container	6.75" W x 10.56" L x 9.45" H	5.40	50.25
SHPC-MJ03	4 Qt. Red, Small Container	6.75" W x 10.56" L x 7.08" H	2.90	27.05
SHPC-MJ04	8 Qt. Red, Medium Container	6.75" W X 10.56" L x 10.89" H	4.95	45.90

Monoject® Supra/Hone Blood Collection Needles - Thin Wall



Features:

- Plastic hub.
- Anti-deflecting butt-end.
- Sterile.
- Unique polymer coating on stainless steel needle.
- Single piece flow-through cannula design.
- One piece molded valve on multiple sample needles.
- Color coded needle sheath designates needle gauge.

Monoject® Supra/Hone Blood Collection Needles

Part No.	Needle Gauge & Length	Color Code	50	100	250
MJSHBC-2001A	20 x 1" Single Sample	Pink	\$11.05	\$20.85	\$49.05
MJSHBC-2101A	21 x 1" Single Sample	Lavender	11.05	20.85	49.05
MJSHBC-2201A	22 x 1" Single Sample	Blue	11.05	20.85	49.05
MJSHBC-2001B	20 x 1" Multi Sample	Pink	11.15	21.05	49.45
MJSHBC-2101B	21 x 1" Multi Sample	Lavender	10.50	19.85	46.60
MJSHBC-2201B	22 x 1" Multi Sample	Blue	10.50	19.85	46.60

Monoject® Softpack Syringes

Features:

- Bold graduations: 0.1cc. (3cc)
- Bold graduations: 0.2cc. (6 and 12cc)
- Sterile.
- Color coded translucent needle hub.
- Longer plunger.
- Extended finger flanges.
- Latex free.
- Shippable cartons.
- Luer lock syringe tip on combination units.
- Color coded gauge stripe and bar code on individual package.



Monoject® 3cc Syringes

Part No.	Description	50	100	250
MJSC-032075	3cc Syringe 20" x 3/4"	\$8.10	\$14.85	\$34.90
MJSC-032001	3cc Syringe 20" x 1"	8.10	14.85	34.90
MJSC-032015	3cc Syringe 20" x 1 1/2"	8.10	14.85	34.90
MJSC-032101	3cc Syringe 21" x 1"	8.10	14.85	34.90
MJSC-032201	3cc Syringe 22" x 1"	8.10	14.85	34.90
MJSC-032215	3cc Syringe 22" x 1 1/2"	8.10	14.85	34.90
MJSC-032301	3cc Syringe 23" x 1"	8.10	14.85	34.90
MJSC-032315	3cc Syringe 23" x 1 1/2"	8.10	14.85	34.90
MJSC-032501	3cc Syringe 25" x 1"	8.10	14.85	34.90
MJSC-032712	3cc Syringe 27" x 1 1/4"	8.10	14.85	34.90

Monoject® 6cc Syringes

Part No.	Description	50	100	250
MJSC-062015	6cc Syringe 20" x 1 1/2"	\$15.30	\$28.05	\$65.90
MJSC-062101	6cc Syringe 21" x 1"	15.30	28.05	65.90
MJSC-062150	6cc Syringe 21" x 1/2"	15.30	28.05	65.90
MJSC-062215	6cc Syringe 22" x 1 1/2"	15.30	28.05	65.90

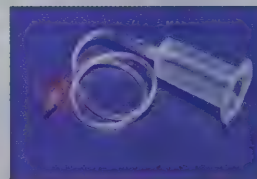
Monoject® 12cc Syringes

Part No.	Description	50	100	250
MJSC-121801	12cc Syringe 18" x 1"	\$16.20	\$29.70	\$69.75
MJSC-122015	12cc Syringe 20" x 1 1/2"	16.20	29.70	69.75
MJSC-122101	12cc Syringe 21" x 1"	16.20	29.70	69.75
MJSC-122115	12cc Syringe 21" x 1 1/2"	16.20	29.70	69.75
MJSC-122250	12cc Syringe 22" x 1 1/2"	16.20	29.70	69.75

Monoject® Angel Wing Blood Collection Sets with Needle Holder

Features:

- Unique self-sheathing needle system.
- One-handed activation of safety mechanism.
- Easy-to-handle textured wings.
- Superior needle sharpness.
- Blood tube holder attached.
- Sterile.



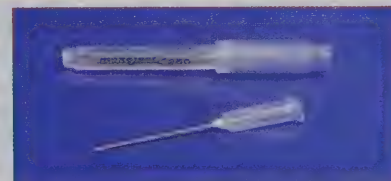
Monoject® Angel Wing Blood Collection Sets W/ Needles

Part No.	Needle Gauge & Length	Color Code	Tubing Length	5	10	25
MJAWBC-2375	23 ga x 3/4"	Blue	12"	\$11.95	\$21.90	\$51.55
MJAWBC-2175	21 ga x 3/4"	Green	12"	11.60	21.25	50.00
MJAWBC-2575	25 ga x 3/4"	Pink	12"	11.60	21.25	50.00

Monoject® Hypodermic Needles with Polypropylene Hub

Features:

- Ultra-sharp, tri-beveled, anti-coring, stainless steel needle.
- Translucent, color coded Luer lock hub.
- Color coded cap on rigid pack.
- Autoclavable in rigid pack for use in O.R./procedure packs.
- Sterile.
- Latexfree.



Monoject® S/S Sharpened Needles

Part No.	Needle Gauge and Length	Color	50	100	250
MJDSH-3075	30 Gauge X 3/4"	Light Blue	\$7.00	\$12.00	\$27.00
MJDSH-2562	25 Gauge x 5/8"	Red	7.00	12.00	27.00
MJDSH-2501	25 Gauge x 1"	Red	7.00	12.00	27.00
MJDSH-2515	25 Gauge x 1 1/2"	Red	7.00	12.00	27.00
MJDSH-2375	23 Gauge x 3/4"	Orange	7.00	12.00	27.00
MJDSH-2301	23 Gauge x 1"	Orange	7.00	12.00	27.00
MJDSH-2201	22 Gauge x 1"	Blue	7.00	12.00	27.00
MJDSH-2215	22 Gauge x 1 1/2"	Blue	7.00	12.00	27.00
MJDSH-2101	21 Gauge x 1"	Lavender	7.00	12.00	27.00

Monoject® S/S Sharpened Needles

Part No.	Needle Gauge and Length	Color	50	100	250
MJDSH-2115	21 Gauge x 1 1/2"	Lavender	\$7.00	\$12.00	\$27.00
MJDSH-2001	20 Gauge x 1"	Pink	7.00	12.00	27.00
MJDSH-2015	20 Gauge x 1 1/2"	Pink	7.00	12.00	27.00
MJDSH-1901	19 Gauge TW x 1"	Lime	7.00	12.00	27.00
MJDSH-1915	19 Gauge TW x 1 1/2"	Lime	7.00	12.00	27.00
MJDSH-1801	18 Gauge x 1"	Green	7.00	12.00	27.00
MJDSH-1815	18 Gauge x 1 1/2"	Green	7.00	12.00	27.00
MJDSH-2750	27 Gauge x 1/2"	Yellow	7.00	12.00	27.00
MJDSH-2650	26 Gauge x 1/2"	White	7.00	12.00	27.00

pH Indicators and Test Papers

• Strips - Type CF

Individual plastic support strips carry four different segments of dye-impregnated indicator papers. The resulting combination of color differences gives an extremely clear and accurate visual pH value. All the dyes are chemically bonded to the paper and cannot be leached into solution; problems associated with contamination of the sample and resultant anomalous readings are avoided.



• Strips - Type CS

Each test strip has a central segment of indicator dye and, printed alongside, 8 or more different color segments marked with corresponding pH values for matching purposes. The pH test value can be read off by direct comparison of the test strip color and the color bars. Ideal for colored solutions, when any changes in color of the paper stock are automatically cancelled out.

• Dispensers - Type TC

The strip has 3 separate indicator dye color bands. The unique combination of color change resulting from each test is compared with the color-coded comparison chart, printed on the dispenser, giving improved speed and accuracy in reading.

• Dispensers - Type SR

A full range and some narrow ranges in this popular pH indicator dispenser.

pH Indicator

Part No.	Type	Description	pH Range	pH Unit Graduation	Dimensions	Packaging	Price
3331-2613991	CF	Color Bonded	0-14	1.0	11 mm x 100 mm	100 strips	\$15.25
3331-2614991	CF	Color Bonded	4.5-10.0	0.5	11 mm x 100 mm	100 strips	15.25
3331-2612990	CS	Integral Comparison Strip	1.0-12.0	1.0	11 mm x 100 mm	200 strips	29.25
3331-2626990	CS	Integral Comparison Strip	1.8-3.8	0.2-0.3	11 mm x 100 mm	200 strips	24.35
3331-2627990	CS	Integral Comparison Strip	1.8-3.8	0.2-0.3	11 mm x 100 mm	200 strips	24.35
3331-2628990	CS	Integral Comparison Strip	5.2-6.8	0.2-0.3	11 mm x 100 mm	200 strips	24.35
3331-2629990	CS	Integral Comparison Strip	6.0-8.1	0.3	11 mm x 100 mm	200 strips	24.35
3331-2630990	CS	Integral Comparison Strip	8.0-9.7	0.2-0.3	11 mm x 100 mm	200 strips	24.35
3331-2631990	CS	Integral Comparison Strip	9.5-12	0.5	11 mm x 100 mm	200 strips	24.35

pH Indicator Dispensers

Part No.	Type	Description	pH Range	pH Unit Graduation	Packaging	Each
3331-2611628	TC	Three Colors	1.0-11.0	1.0	1 Dispenser 7mm x 5m	\$18.80
3331-2600100A	SR	Standard Full Range	1.0-14.0	1.0-2.0	1 Dispenser 7mm x 5m	14.75
3331-2600101A	SR	Standard Narrow Range	0.5-5.5	0.5-1.0	1 Dispenser 7mm x 5m	13.65
3331-2600102A	SR	Standard Narrow Range	4.0-7.0	0.5	1 Dispenser 7mm x 5m	13.65
3331-2600103A	SR	Standard Narrow Range	6.0-8.0	0.5	1 Dispenser 7mm x 5m	13.65
3331-2600104A	SR	Standard Narrow Range	8.0-10.0	0.5	1 Dispenser 7mm x 5m	13.25

Acid-Alkali Test Papers

• Litmus Blue and Litmus Red

These easy-to-use test papers facilitate a general test for acid or alkaline reaction. The change occurs around pH 5-8. They are particularly recommended for educational use.

• Congo Red

This test paper changes color from blue to red in the range pH 3-5 for the determination of neutralization point in strong acid/weak alkali reactions.

• Phenolphthalein

This white paper changes to pink at pH 8.3 and becomes red at pH 10. It is useful for the determination of the neutralization point in weak acid/strong alkali reactions.

Acid Alkali Test Papers Books

Part No.	Description	Packaging	10	20
3331-2600601	Litmus Blue	Carton of 10 Packs of 10 Books	\$66.10	-
3331-2600602	Litmus Red	Carton of 10 Packs of 10 Books	66.10	-
3331-2600500	pH Indicator Booklet	20 Pack per Carton	-	\$81.50
		10 Books per Pack		
	pH 1-11	10 Strips per Book		

Acid Alkali Test Papers Dispensers Litmus

Part No.	Description	Packaging	Price
3331-2600201A	Litmus Blue	1 Dispenser 7mm x 5m	\$13.65
3331-2600202A	Litmus Red	1 Dispenser 7mm x 5m	13.25
3331-2600203A	Congo Red	1 Dispenser 7mm x 5m	13.25
3331-2600204A	Phenolphthalein	1 Dispenser 7mm x 5m	13.65

Flexible Teflon Needles with Plastic Hub

Teflon Blunt Needles - H.D. Polyethylene Hub

For dispensation of material into hard to get areas, flexible Teflon Needles are most convenient. They also allow dispensing of cyanoacrylates and other bonding materials without premature clogging. Teflon needles will not scratch or mar highly sensitive surfaces. The plastic Luer lock hub is compatible with Luer lock syringes and squeeze bottles. Body is molded plastic. Needle length is 2".

Flexible Teflon Needles with Plastic Hub

Part No.	Gauge	Dimensions in Inches			Each	5	10
		O.D.	I.D.				
NE-024	24	0.025-0.029	0.019-0.021		\$3.90	\$16.05	\$26.80
NE-020	20	0.045-0.048	0.033-0.036		3.90	16.05	26.80
NE-014	14	0.083-0.086	0.067-0.071		3.90	16.05	26.80

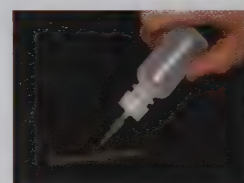


Polyethylene Taper Tips

Free-flow Taper Tips provide an unrestricted channel for high viscosity material such as solder paste. Luer hub enables use with syringes and squeeze bottles. Color-coded for easy sizes identification. Length: 1-1/4".

Polyethylene Tapers Tips

Part No.	Gauge	I.D.	Color	5	25	50
FFT-22	22	0.016"	Blue	\$3.65	\$15.25	\$25.40
FFT-20	20	0.023"	Pink	3.65	15.25	25.40
FFT-18	18	0.033"	Green	3.65	15.25	25.40
FFT-16	16	0.047"	Black/Gray	3.65	15.25	25.40
FFT-14	14	0.063"	White	3.65	15.25	25.40



Polyethylene Squeeze Bottles

Get "one drop at a time" dispensing of fluxes, inks, solvents, oils, etc. with durable Polyethylene Squeeze Bottles. Furnished with 18mm screw-on cap with luer taper for use with needles.

Polyethylene Squeeze Bottles

Part No.	Capacity	Each	5	10
SQB-01	1 oz.	\$2.40	\$9.95	\$16.55
SQB-02	2 oz.	2.50	10.35	17.25

Disposable Syringes



These general purpose polypropylene syringes with luer lock tips are used for injection, inflation, pulling a vacuum, sampling and are handy for dispensing liquids. They are graduated with easy to read markings. They will fit any female luer fitting including sharp needles, our blunt needles, teflon needles and stopcock valves. Syringe barrel and plunger made from polypropylene. Plunger seal is polyisoprene.

Note: 1cc. syringes are luer taper tip, not luer lock.

Heavy Duty Syringes - Luer Lock

Part No.	Body Material	Plunger Tip	Capacity	Each	5	10
*SYR-001CC	Polypropylene	Polyisoprene	1 cc	\$1.60	\$6.60	\$10.95
SYR-006CC	Polypropylene	Polyisoprene	6 cc	1.35	5.50	10.05
SYR-012CC	Polypropylene	Polyisoprene	12 cc	1.35	5.55	10.10
SYR-020CC	Polypropylene	Polyisoprene	20 cc	2.25	9.40	18.80
SYR-035CC	Polypropylene	Polyisoprene	35 cc	2.70	11.25	22.50
SYR-060CC	Polypropylene	Polyisoprene	60 cc	3.75	15.50	30.95

*Note: 1cc. syringes are luer taper tip, not luer lock



Stainless Steel Disposable Blunt Needle

Stainless Steel Needles with plastic hubs

are disposable and can be used for precise dispensing of fluids, epoxies, solvents, fluxes, oils, pastes, etc. Needles are blunt and burr-free. Compatible with luer lock Syringes and luer taper cap on Squeeze Bottles.

Stainless Steel Disposable Blunt Needles w/ Plastic Hub

Part No.	Gauge	Needle Length	Dimensions in Inches			10	25	100
			O.D.	I.D.				
NE-301PL	30	1/2	0.012	0.006		\$3.00	\$6.40	\$21.70
NE-271PL	27	1/2	0.016	0.008		4.00	8.45	28.80
NE-272PL	27	1	0.016	0.008		4.25	8.95	30.45
NE-273PL	27	1 1/2	0.016	0.008		4.50	9.60	32.50
NE-261PL	26	1/2	0.018	0.010		4.00	8.45	28.80
NE-262PL	26	1	0.018	0.010		4.25	8.95	30.45
NE-263PL	26	1 1/2	0.018	0.010		4.50	9.60	32.50
NE-251PL	25	1/2	0.020	0.010		4.00	8.45	28.80
NE-252PL	25	1	0.020	0.010		4.25	8.95	30.45
NE-253PL	25	1 1/2	0.020	0.010		4.50	9.60	32.50
NE-231PL	23	1/2	0.025	0.013		4.00	8.45	28.80
NE-232PL	23	1	0.025	0.013		4.25	8.95	30.45
NE-233PL	23	1 1/2	0.025	0.013		4.50	9.60	32.50
NE-221PL	22	1/2	0.028	0.016		4.00	8.45	28.80
NE-222PL	22	1	0.028	0.016		4.25	8.95	30.45
NE-223PL	22	1 1/2	0.028	0.016		4.50	9.60	32.50
NE-211PL	21	1/2	0.032	0.020		4.00	8.45	28.80
NE-212PL	21	1	0.032	0.020		4.25	8.95	30.45
NE-213PL	21	1 1/2	0.032	0.020		4.50	9.60	32.50
NE-201PL	20	1/2	0.036	0.023		4.00	8.45	28.80
NE-202PL	20	1	0.036	0.023		4.25	8.95	30.45
NE-203PL	20	1 1/2	0.036	0.023		4.50	9.60	32.50
NE-191PL	19	1/2	0.042	0.027		4.00	8.45	28.80
NE-192PL	19	1	0.042	0.027		4.25	8.95	30.45
NE-193PL	19	1 1/2	0.042	0.027		4.50	9.60	32.50
NE-181PL	18	1/2	0.050	0.033		4.00	8.45	28.80
NE-182PL	18	1	0.050	0.033		4.25	8.95	30.45
NE-183PL	18	1 1/2	0.050	0.033		4.50	9.60	32.50
NE-161PL	16	1/2	0.065	0.047		4.25	8.95	30.95
NE-162PL	16	1	0.065	0.047		4.30	9.05	30.65
NE-163PL	16	1 1/2	0.065	0.047		4.60	9.70	33.00
NE-151PL	15	1/2	0.072	0.054		5.20	11.05	37.65
NE-152PL	15	1	0.072	0.054		5.60	12.00	40.65
NE-153PL	15	1 1/2	0.072	0.054		5.60	12.00	40.65
NE-141PL	14	1/2	0.083	0.063		6.20	11.75	39.85
NE-142PL	14	1	0.083	0.063		6.10	13.25	45.05
NE-143PL	14	1 1/2	0.083	0.063		6.30	13.45	45.75



Dispensing Drop Bottles

The sealer cap on these low density polyethylene dispenser bottles snap on easily and continues to hold a tight seal even after repeated use. Tip opening is .76mm (.030").

Dispensing Drop Bottles

Part No.	Description	Each	Bag of 6	Dozen
3232-F116370012	1/2 oz	\$1.50	\$5.75	\$10.50
3232-F116370001	1 oz	1.50	6.00	11.00
3232-F116370002	2 oz	1.60	6.80	12.50
3232-F116370004	4 oz	2.75	11.20	20.50
3232-F116370006	6 oz	2.75	11.20	20.50
3232-F116370008	8 oz	3.15	13.30	24.50
3232-F116370016	16 oz	4.25	17.25	31.50



Go to www.smallparts.com

For a complete selection of Needles and Syringes.



Stainless Steel 45° & 90° Disposable Bent 1/2" Standard Hypodermic Needles

Stainless Steel Needles with plastic hubs are disposable and can be used for precise dispensing of all fluids, epoxies, solvents, fluxes, oils, pastes, etc. Needles are blunt and burr-free. Fully compatible with luer lock Syringes, and luer taper cap on Squeeze Bottles. 90° angled Hypodermic Needles W/ Luer Hub, are also available.

Also available; Stainless Steel Fluid Dispensing Hypodermic Needles W/ Plastic Hubs, Teflon® Fluid Dispensing Needles W/Plastic Hubs and separate Polypropylene Needle Hubs and Kits.

S/S 90° Disposable Bent 1/2" Standard Needles

Part No.	Size	Color	O.D.	I.D.	10	25	100
NE-9014	14	White	0.083	0.063	\$11.65	\$23.30	\$81.55
NE-9015	15	Brown	0.072	0.054	11.65	23.30	81.55
NE-9016	16	Black	0.065	0.047	10.90	21.80	76.30
NE-9018	18	Dk.Green	0.050	0.033	10.85	21.70	75.95
NE-9019	19	Lt.Green	0.042	0.027	10.85	21.70	75.95
NE-9020	20	Pink	0.036	0.023	10.85	21.70	75.95
NE-9021	21	Purple	0.032	0.020	10.85	21.70	75.95
NE-9022	22	Blue	0.028	0.016	10.85	21.70	75.95
NE-9023	23	Orange	0.025	0.013	10.85	21.70	75.95
NE-9025	25	Red	0.020	0.010	10.85	21.70	75.95
NE-9027	27	Grey	0.016	0.008	10.85	21.70	75.95

Stainless Steel 45° Disposable Bent 1/2" Standard Needles

Part No.	Size	Color	O.D.	I.D.	10	25	100
NE-4514	14	White	0.083	0.063	\$11.65	\$23.30	\$81.55
NE-4515	15	Brown	0.072	0.054	11.65	23.30	81.55
NE-4516	16	Black	0.065	0.047	10.90	21.80	76.30
NE-4518	18	Dk. Green	0.050	0.033	10.85	21.70	75.95
NE-4519	19	Lt. Green	0.042	0.027	10.85	21.70	75.95
NE-4520	20	Pink	0.036	0.023	10.85	21.70	75.95
NE-4521	21	Purple	0.032	0.020	10.85	21.70	75.95
NE-4522	22	Blue	0.028	0.016	10.85	21.70	75.95
NE-4523	23	Orange	0.025	0.013	10.85	21.70	75.95
NE-4525	25	Red	0.020	0.010	10.85	21.70	75.95
NE-4527	27	Grey	0.016	0.008	10.50	21.00	73.50

Polypropylene Needle Hubs

Experiment with different materials, gauges and lengths until you find the combination you need. These are the

same hubs used on our Blunt needle series, now available for you to experiment with. They can be used with our Luer Lock Syringes and our Luer Taper Squeeze Bottles.

Polypropylene Needle Hubs

Part No.	Hypodermic Tubing Gauge	Color	25	50	100
NEHUB-0151	14	White	\$7.55	\$10.75	\$19.35
NEHUB-0141	15-16	Brown	7.55	10.75	19.35
NEHUB-0111	17-18	Dark Green	7.55	10.75	19.35
NEHUB-0101	19	Light Green	7.55	10.75	19.35
NEHUB-0091	20	Pink	7.55	10.75	19.35
NEHUB-0081	21	Purple	7.55	10.75	19.35
NEHUB-0071	22	Blue	7.55	10.75	19.35
NEHUB-0061	23	Orange	7.55	10.75	19.35
NEHUB-0041	24-26	Red	7.55	10.75	19.35
NEHUB-0021	27-30	Grey	8.75	12.50	22.50

Polyethylene Squeeze Bottles

Get "one drop at a time" dispensing of fluxes, inks, solvents, oils, etc. with durable Polyethylene Squeeze Bottles. Furnished with 18 mm screw-on cap with luer taper for use with needles.

Polyethylene Squeeze Bottles

Part No.	Capacity	1	Price 5	10
SQB-01	1 oz.	\$2.40	\$9.95	\$16.55
SQB-02	2 oz.	2.50	10.35	17.25

Build your own special application needles with Small Parts Needle Hub Lab Kit!

This Kit contains ten of each hub size, two 6" pieces of HTX (hypodermic tubing) and Teflon® (PTFE Tubing) listed below, as well as the Loctite® products below to get started. As always, this Lab Kit comes in the Infinite Divider Box for easy organized storage.

Hypodermic Tubing Gauges	Sizes
14	22
16	23
17	24
18	25
20	27
21	30

PTFE Tubing Gauges	Sizes
14	24
15	26
16	30
19	
20	
22	

Loctite Products
401 Prism Adhesive
410 Prism Black Adhesive
770 Prism Primer

Note: Needle Hub Kit Must Ship Ground Only.

NEHUB-9000 \$120.00



Go to www.smallparts.com

For a complete selection of new Laboratory Products.





Loctite® Hot Melt Adhesives

Loctite's Hysol® hot melt adhesives are designed to bond a variety of substrates. Ideal for applications that require high speed, bonding versatility, large gap filling, fast green strength and minimal shrinkage. Hysol® hot melts are solvent-free, environmentally friendly material with no harmful VOCs.

Loctite® 1X Hysol® Hot Melt Adhesive

EVA based medium to fast setting, recommended for bonding paper, wood, fabric, and foam.

Loctite® Hot Melt Adhesives

Part No.	Description	Stick Size (Diameter)	Container Size & Type	Color	Bonds	Tensile Strength, psi	Temperature Resistance	Price
LOC-83359	Hysol 1X Maxistick Hot Melt Adhesive for medium to fast setting	3/4" x 2.4"	7 oz. Bag	Light Yellow	Paper, wood fabric, and foam	370	150° F	\$8.85
LOC-83360	Hysol 1X Maxistick Hot Melt Adhesive for medium to fast setting	3/4" x 2.4"	35 lb Carton	Light Yellow	Paper, wood fabric, and foam	370	150° F	268.40
LOC-83364	Hysol 1X Superstick Hot Melt Adhesive for medium to fast setting	1/2" x 10"	5 oz. Bag	Light Yellow	Paper, wood fabric, and foam	370	150° F	7.10
LOC-83365	Hysol 1X Superstick Hot Melt Adhesive for medium to fast setting	1/2" x 10"	25 lb Carton	Light Yellow	Paper, wood fabric, and foam	370	150° F	191.70



LOC-98029

Loctite® Hot Metal Adhesive Applicators

Loctite's Hysol® hot melt applicators are state-of-the art dispensing units. These units combine ergonomics user friendly design and reliability. Selection of applicators should be based upon stick diameter and desired processing speed.

Loctite® Hot Metal Adhesive Applicator

Part No.	Description	Stick Capacity (diameter)	Melt Rate (lbs/hr)	Heat Source	Dispense Power	Dispense Temp	Each
LOC-98029	Loctite Hysol® 050-LITE applicator for Supersticks	1/2"	1	Electric	Manual	200°	\$34.45
LOC-98030	Loctite Hysol® 050 applicator for Supersticks	1/2"	3	Electric	Manual	195°	97.30
LOC-98033	Loctite Hysol® 075 applicator for Maxisticks	3/4"	9	Electric	Manual	182°	285.30



LOC-51817

Loctite® Anaerobic Gasketing

Loctite® brand anaerobic gasketing materials remain liquid when exposed to air, but cure when confined between mating flanges. Anaerobic gasketing products are best suited for small gap applications and rigid metal-to-metal assemblies.

Loctite® 518 Gasket Eliminator Flange Sealant

Forms a flexible, solvent-resistant seal that will not tear or decay. Seals to 300° F and fills gaps to 0.050". Can be used on flexible metal assemblies, including aluminum surfaces. Easy disassembly and cleaning.

Loctite® Anaerobic Gasketing

Part No.	Description	Container Size	Color	Typical Uses	Max Gap Fill	Viscosity, cP	Cured State	Temp Range	Cure Speed	Recommended Primer	Price Each
LOC-51817	518 Loctite® anaerobic, solvent resistant gasketing	6 ml tube	Red	All metals including Aluminum Flanges	Unprimed .010" Primed .050"	800,00/ 3,750,000 Thixotropic	Flexible	-65°F to 300° F	Unprimed: 4-24hrs Primed: 30min-4hrs	Loctite 7649 'N'	\$4.55
LOC-51831	518 Loctite® anaerobic, solvent resistant gasketing	50 ml tube	Red	All metals including Aluminum Flanges	Unprimed .010" Primed .050"	800,00/ 3,750,000 Thixotropic	Flexible	-65°F to 300° F	Unprimed: 4-24hrs Primed: 30min-4hrs	Loctite 7649 'N'	14.10

Epoxy - Clear Fast Setting



Z-Poxy™ 5-Minute and 30-Minute formula Pacer's Z-Poxy™ is a clear two-part resin/hardener system. The resin is epoxy based and the hardener contains amine resin. Both the five and thirty minute formulations permanently bond fiberglass, metal, wood, plastics and other materials. Z-Poxy™ is non-shrinking and has excellent gap filling characteristics. They are highly resistant to shock and solvents. Uncured excess may be cleaned up with denatured alcohol and it is easily sanded when cured.

EPX-PT37	5-Minute System	4oz	\$10.95
EPX-PT38	5-Minute System	8oz	\$14.95
EPX-PT39	30-Minute System	8oz	\$14.95

Loctite® Medical Device Adhesives

Loctite® brand adhesives and sealants offer the most comprehensive line to the medical device industry. These ISO-10993 complaint products are designed specifically for the assembly of medical devices where toxicity testing and sterilization resistance are required.

Loctite® 3942 Light Cure Adhesives

High Performance/Various Substrates
Fluorescing, UV/visible acrylic adhesives. Ideal for applications where high strength on a variety of substrates and rapid surface cure are required.

Loctite® 3924 Light Cure Adhesives Plastic/Metal

Fluorescing, UV/visible adhesives offering superior sterilization resistance. Ideal for bonding a wide variety of plastic and metal components where environmental resistance is required.

Loctite® 3311 Light Cure Adhesives Plastic/Metal

A low viscosity, slightly flexible, UV/visible adhesive. Excellent for bonding thermoplastics and plasticized PVC.

Flashcure® 4304 Light Cure Instant Adhesive

Low or high viscosity adhesives achieve tack-free cures in less than 5 seconds. Surface versatile with shadow cure capability.

Prism® 4011 Medical Device Instant Adhesive, Surface Insensitive

A low viscosity, instant adhesive ideally suited for dry environments, as well as for bonding acidic and porous surfaces.

Prism® 4541 Medical Device Instant Adhesive Surface Insensitive Gel

A fast curing, gel cyanoacrylate adhesive specially formulated for difficult to bond substrates. The gel consistently prevents adhesive flow, even on vertical surfaces. NOTE: Always test cyanoacrylates, adhesion promoters and accelerators on amorphous thermoplastics for compatibility. Cure rapidly to avoid stress cracking



Loctite® Medical Device Adhesives

Part No.	Description	Container Size	Appearance Clarity/Color	Cure Type	Key Substrates	Viscosity, cP Brookfield 25° C	Temp Range	Price Each
LOC-19736	3311 Loctite® Light Cure Adhesive - Acrylic	25mL syringe	Clear / Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinylchloride	300	-65°F to 300° F	\$40.20
LOC-36488	3924 Loctite® Light Cure Adhesive - Acrylic	25mL syringe	Transparent to hazy/fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinylchloride	1100	-65°F to 300° F	40.20
LOC-36483	3942 Loctite® Light Cure Adhesive - Acrylic	25mL syringe	Transparent to hazy/fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, thermoset plastic	1200	-65°F to 300° F	40.20
LOC-32254	4304 Loctite® Flashcure Light Cure Adhesive - Cyanoacrylate	1 oz. bottle	Clear/pale green	Ultraviolet, visible Moisture	Thermoplastic, polycarbonate, metal, elastomer	20	-65°F to 180° F	57.10
LOC-18680	4011 Loctite® Prism Medical Device Adhesive - Cyanoacrylate	20 gm bottle	Clear	Moisture	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	100	-65°F to 180° F	25.00
LOC-18690	4541 Loctite® Prism Medical Device Adhesive - Cyanoacrylate	20 gm bottle	Clear	Moisture	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	Gel	-65°F to 180° F	26.50
LOC-20269	4542 Loctite® Prism Medical Device Adhesive - Cyanoacrylate	20 gm bottle	Clear	Moisture	Thermoplastic, thermoset plastic, metal	3	-65°F to 220° F	18.15



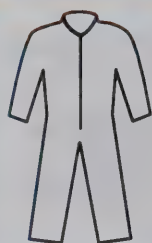
Loctite® Threadlocker

Loctite® brand liquid threadlockers have found wide acceptance in a range of applications from delicate electronic components to heavy construction equipment. Loctite® brand threadlockers are available in varying viscosities and strengths for virtually any application, including exposure to extreme environments.

Recommended Primer: Loctite 7649

Loctite® Threadlocker

Part No.	Description	Container Size	Color	Fastener Size	Break/Prevail Torque	Cure Speed	Viscosity	Temp Range	Price Each
LOC-22221	222MS Loctite® Threadlocker	10 ml	Purple	-	53/30	Fixture- 10 min. Full- 24 hrs.	1,200/5,000 Thixotropic	-65°F to 300° F	\$9.90
LOC-24221	242 Loctite® Threadlocker	10 ml	Blue	-	110/43	Fixture- 10 min. Full- 24 hrs.	1,200/5,000 Thixotropic	-65°F to 300° F	9.90
LOC-24231	242 Loctite® Threadlocker	50 ml	Blue	-	110/43	Fixture- 10 min. Full- 24 hrs.	1,200/5,000 Thixotropic	-65°F to 300° F	29.50
LOC-26221	262 Loctite® Threadlocker	10 ml	Red	-	189/275	Fixture- 5 min. Full- 24 hrs.	1,200/5,000 Thixotropic	-65°F to 300° F	9.90
LOC-27131	271 Loctite® Threadlocker	50 ml	Red	-	250/275	Fixture- 10 min. Full- 24 hrs.	500	-65°F to 300° F	28.75
LOC-29021	290 Loctite® Threadlocker	10 ml	Green	-	85/250	Fixture- 6 min. Full- 24 hrs.	12	-65°F to 300° F	12.60
LOC-37684	248 Loctite® QuickStix medium strength threadlocker	9 gm Quickstix	Blue	1/4" to 3/4" 6mm to 20mm	110/43	Fixture - 10 min Full Strength - 24 hrs	-	-65°F to 300° F	10.25
LOC-37685	268 Loctite® QuickStix high strength threadlocker	9 gm Quickstix	Red	Up to 3/4" 20mm	202/4	Fixture - 20 min Full Strength - 24 hrs	-	-65°F to 300° F	10.25



Kimberly Clark Kleenguard® XP Coveralls:

- Individually packaged to keep the coverall clean and protected for workers on the go
- Excellent particulate and liquid barrier
- Low linting
- Features zipper front
- No pockets

Kimberly Clark Kleenguard® XP Coveralls

Part No.	Size	Color	Each	Box of 25
KC-44344	X-Large	White	\$4.75	\$99.60
KC-44345	2X-Large	White	4.75	99.60



Kimberly Clark Kleenguard® XP Lab Coats

- Excellent particulate and liquid barrier
- Low linting
- Features snap front with chest and hip pocket
- Kleenguard XP lab coat, white with snap front, 2 pockets and open wrist

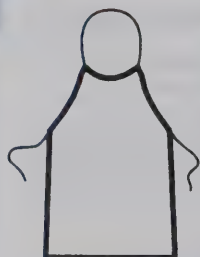
Save
15%

In full box quantity*

Kimberly Clark Kleenguard® XP Lab Coats

Part No.	Size	Color	Each	Box of 30
KC-444452	Medium	White	\$3.55	\$89.90
KC-444453	Large	White	3.55	89.90
KC-444454	X-Large	White	3.55	89.90
KC-444455	2X-Large	White	3.55	89.90

*Prices valid through October 2006



Kimberly Clark Kleenguard® XP Aprons

Made from a breathable, microporous film laminate, Kleenguard® XP is an excellent replacement for Tyvek®.

- Better liquid barrier
- Better particulate barrier
- Lower in lint
- Meets ANSI/SEA 101-1996 sizing standard
- Passes NFPA 99 criteria for antistatic materials

Kimberly Clark Kleenguard® XP Aprons

Part No.	Description	Size	Color	Each	Box of 100
KC-44481	Kleenguard XP white apron, 29" x 44"	Medium	White	\$1.45	\$99.35



Kimberly Clark Komfortguard® Lab Coats

Snap Front; No Pockets; Elastic Wrists

Kimberly Clark's Komfortguard® line of disposable apparel offers great comfort, as well as the right combination of price and protection for many non-hazardous environments.

- Lightweight, breathable fabric keep workers cool and comfortable
- Adheres to ANSI/SEA 101-1996 sizing standards
- The right combination of price & protection for non-hazardous environments

Kimberly Clark Komfortguard® Lab Coats

Part No.	Description	Size	Color	Each	Box of 50
KC-40103	Komfortguard Lab Coat, elastic wrist, no pockets	Large	White	\$2.05	\$71.70
KC-40104	Komfortguard Lab Coat, elastic wrist, no pockets	X-Large	White	2.05	71.70
KC-40105	Komfortguard Lab Coat, elastic wrist, no pockets	2X-Large	White	2.15	75.25



Ansell CPP Vinyl Long Sleeve Coats

- Blue abrasion resistant virgin vinyl
- Excellent protection against acids, alkalis, solvents, chemicals, oils, fats and salts
- Medium to heavy duty splash protection with dielectrically welded (no sewn) seams
- No exposed elastic or metal parts to create static or corrosion
- Excellent for laboratory, medical, pharmaceutical and chemical processing 8 mil thick
- Description: full length with long sleeves

Ansell CPP Vinyl Long Sleeve Coats

Part No.	Size	Each	Box of 12
ANS-56-910-S	Small	\$1.30	\$11.90
ANS-56-910-M	Medium	1.30	11.90
ANS-56-910-L	Large	1.30	11.90
ANS-56-910-XL	Extra Large	1.30	11.90



ANS-56-910



Ansell Denim Shop Apron

All-cotton shop aprons feature coolness, comfort, and launderability. Made from high-quality, heavy-duty, 14 ounce pre-shrunk denim.

Ansell Denim Shop Apron

Part No.	Description	Each	Box of 12
ANS-57-005	Denim Shop Apron with bib pocket and two side Pockets 28"x 36"	\$4.95	\$46.40



Ansell CPP Vinyl Aprons

- Blue abrasion resistant virgin vinyl
- Excellent protection against acids, alkalis, solvents, chemicals, oils, fats and salts
- Two styles to choose from die cut and raw edge style
- Die cut 6 mil thick blue vinyl apron

Ansell CPP Vinyl Aprons

Part No.	Size	Style	Each	Box of 12
ANS-56-015-3545	35x45	Die Cut	\$0.95	\$7.40
ANS-56-015-3555	35x55	Die Cut	1.10	8.60
ANS-56-009-3545	35x45	Raw Edge	0.95	7.60
ANS-56-009-3555	35x55	Raw Edge	1.05	8.10



Shoe Covers and Bouffant Caps

Kimberly Clark Kleenguard® Bouffant Caps:

- Latex free
- Breathable

Kimberly Clark Kleenguard® Shoe Covers:

- Fully elasticized
- Color: White

Shoe Covers and Bouffant Caps

Part No.	Size	Box Count	Price per Box
KC-36900	Bouffant Caps	Medium 200	\$29.55
KC-36920	Bouffant Caps	Large 150	24.10
KC-36885	Shoe Covers	Universal 150	39.40



Ansell HyFlex® General Purpose Gloves

- HyFlex® knit lined, nitrile foam-coated general purpose glove
- Patented foam nitrile coating is resistant to snags and abrasions
- Excellent grip while providing maximum tactile sensitivity
- Ideal for small parts handling and precision assembly applications

**Save
20%**

When purchase by the dozen*

General Purpose Gloves

Part No.	Size	Glove Material	Length	Each	Box of 12
ANS-11-800-7	7	Knit lined - nitrile foam coated	Wrist	\$4.40	\$42.70
ANS-11-800-8	8	Knit lined - nitrile foam coated	Wrist	4.40	42.70
ANS-11-800-9	9	Knit lined - nitrile foam coated	Wrist	4.40	42.70
ANS-11-800-10	10	Knit lined - nitrile foam coated	Wrist	4.40	42.70

*Prices valid through October 2006

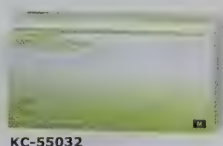


Ansell Air Flex® Gloves

- Exclusive AirFlex® is a breakthrough design that offers unbeatable comfort
- The outside of the glove is a natural blue latex
- On the inside the integral lining is a unique green latex foam that contains thousands of tiny air bubbles
- The foam lining provides superior comfort and perspiration absorption, as well as provides an insulation barrier against cold and warm surfaces

Ansell Air Flex®

Part No.	Size	Length	Each	Box of 12
ANS-505-7	7	12 3/4"	\$0.90	\$9.15
ANS-505-8	8	12 3/4"	0.90	9.15
ANS-505-9	9	12 3/4"	0.90	9.15
ANS-505-10	10	12 3/4"	0.90	9.15



KC-55032



KC-55082



MF-300

Disposable Exam Gloves

Part No.	Description	Glove Material	Tradename	Size	Powder Free	Length	Gloves per Box	Price Per Box
MF-300-S	Latex exam glove with textured grip to improve grip wet or dry	Latex	Diamond Grip	Small	Yes	9"	100	\$7.90
MF-300-M	Latex exam glove with textured grip to improve grip wet or dry	Latex	Diamond Grip	Medium	Yes	9"	100	7.90
MF-300-L	Latex exam glove with textured grip to improve grip wet or dry	Latex	Diamond Grip	Large	Yes	9"	100	7.90
KC-55031	Synthetic exam glove, smooth grip, contains no natural latex	Coated Vinyl	Safeskin	Small	Yes	9"	100	6.95
KC-55032	Synthetic exam glove, smooth grip, contains no natural latex	Coated Vinyl	Safeskin	Medium	Yes	9"	100	6.95
KC-55033	Synthetic exam glove, smooth grip, contains no natural latex	Coated Vinyl	Safeskin	Large	Yes	9"	100	6.95
KC-55081	Purple Nitrile exam glove, textured fingertips, contains no natural latex	Nitrile	Safeskin	Small	Yes	9"	100	13.70
KC-55082	Purple Nitrile exam glove, textured fingertips, contains no natural latex	Nitrile	Safeskin	Medium	Yes	9"	100	13.70
KC-55083	Purple Nitrile exam glove, textured fingertips, contains no natural latex	Nitrile	Safeskin	Large	Yes	9"	100	13.70

Caution (Synthetic): Components used in making these gloves may cause allergic reactions in some users. Follow your institution's policies for use.

Caution (LATEX): This product contains natural rubber latex (latex) which may cause allergic reactions. Safe use of this glove by or on latex sensitized individuals has not been established.



Ansell KleenKnit® Nylon Inspection Gloves

- KleenKnit® special stretch lightweight inspection glove
- Fine gauge cut of this glove provides exceptional dexterity
- Suitable for use in selected critical environment applications
- Is ideal where contamination from cotton lint is a concern

Inspection and Cleanroom Gloves

Part No.	Size	Glove Material	Length	Each	Box of 12
ANS-78-200-S	7	Nylon	Wrist	\$1.25	\$12.75
ANS-78-200-L	9	Nylon	Wrist	1.25	12.75



Ansell Sol-Vex® Gloves

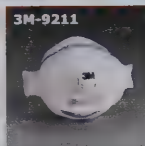
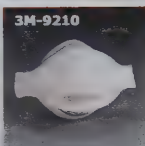
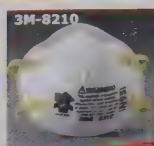
- This nitrile gloves offer outstanding strength and chemical resistance
- When exposed to aromatic and petroleum solvents, as well as caustics and animal fats, Sol-Vex® gloves have proven to be a superior choice over rubber or neoprene
- Sol-Vex® won't swell, weaken, or degrade
- Better protection against snags, punctures, abrasions and cuts

Ansell Sol-Vex®

Part No.	Size	Length	Each	Box of 12
ANS-37-145-7	7-7.5	13"	\$1.35	\$14.00
ANS-37-145-8	8-8.5	13"	1.35	14.00
ANS-37-145-9	9-9.5	13"	1.35	14.00
ANS-37-145-10	10	13"	1.35	14.00

Disposable Exam Gloves

- All exam gloves are ambidextrous
- Offered in powder-free
- Three materials to choose from:
 - Latex
 - Synthetic (coated vinyl)
 - Nitrile



Low Introductory prices*
on 3M-8210

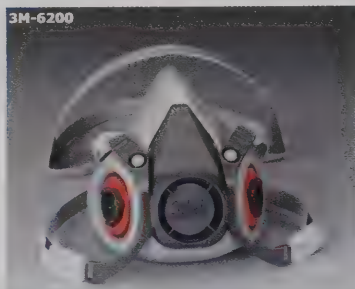
3M™ Disposable N95 Respirators

- 8000: Lightweight construction enhances worker comfort and wear time.
- 8210: Designed to help provide comfortable worker protection.
- 8511: Lightweight construction helps promote greater worker acceptance, comfort and increased wear time, 3M™ Cool Flow™ valve.
- 9210: This three-panel respirator is a breakthrough in comfort and convenience. Low profile collapse resistant design.
- 9211: This three-panel respirator is a breakthrough in comfort and convenience. It features a low profile collapse resistant design, 3M™ Cool Flow™ valve.

3M N95 Particulate Respirators

Part No.	Description	Patented Filter Media	Two Straps	Nose Clip	Nose Foam (for comfort)	3M Cool Flow Valve	Collapse Resistant	Box Quantity	Price Per Box
3M-8000	Light Duty, short duration applications, non-oil based particles	X	X	X				30	\$9.95
3M-8210	Grinding, sanding, sweeping, bagging and other dusty operations	X	X	X	X			20	11.50*
3M-8511	Grinding, sanding, sweeping, bagging and other dusty operations	X	X	X		X		10	15.00
3M-9210	Grinding, sanding, sweeping, bagging and other dusty operations	X	X	X	X		X	20	17.95
3M-9211	Grinding, sanding, sweeping, bagging and other dusty operations	X	X	X	X	X	X	10	15.70

*Prices valid through October 2006

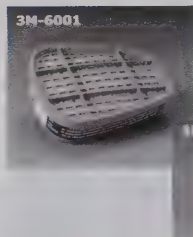


3M™ Half Facepiece Respirator 6000 Series

Use with 3M™ Filters 2000 Series, 3M™ Filter 7093, P100, 3M™ Cartridges 6000 Series, against a variety of gases, vapors and particulate hazards according to NIOSH approvals.

3M Half Facepiece Respirators - 6000 Series

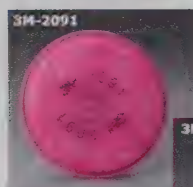
Part No.	Description	Size	Quantity	Price Per Each
3M-6100	Half Facepiece Respirator 6000 Series	Small	1	\$8.75
3M-6200	Half Facepiece Respirator 6000 Series	Medium	1	8.75
3M-6300	Half Facepiece Respirator 6000 Series	Large	1	8.75



3M Organic Vapor Cartridges 6000 Series

For use with 6000 Series Respirator

Part No.	Cartridge Type	NIOSH approved against	Color Code	Quantity per Pack	Price Per Pack
3M-6001	OV Organic Vapors	Certain organic vapors	Black	2	\$7.45
3M-60921	OV P100	Certain organic vapors and particulates	Black/Magenta	2	15.10
3M-6002	AG Acid Gas	Certain acid gases	White	2	8.05
3M-6004	AM/MA	Ammonia and Methylamine	Green	2	8.70



3M 2000 Series Filters

For use with 6000 Series Respirator

Part No.	Filter Type	NIOSH approved against	Requires 502 Adapter	Quantity per Pack	Price Per Pack
3M-2071	P95 Particulate	-	Yes	2	\$2.90
3M-2091	P100 Particulate	Certain oils and base particles	Yes	2	4.70
3M-2097	P100 Particulate with nuisance level Organic Vapor*	Certain oils and non-oil base particles	Yes	2	6.40

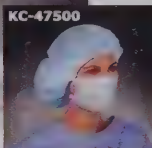
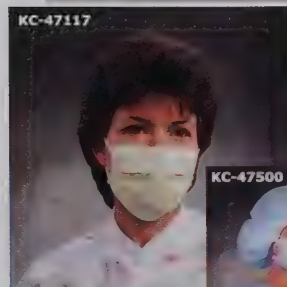
*Nuisance level refers to concentrations below current OSHA PELs



3M Adapters for 2000 Series Filters

For use with 6000 Series Respirator

Part No.	Description	For use with 2000 Series Filters	Quantity per Pack	Price Per Pack
3M-502	Adapter for 2000 Series Filters	Yes	20	\$28.70



Kimberly Clark Laboratory Face Masks

General purpose lab face mask with protective 3 layer construction

Kimberly Clark Laboratory Face Masks

Part No.	Description	Style of donning	Color	Box Quantity	Price Per Box
KC-47117	Procedure Mask, pleat style	Earloops	Yellow	50	\$10.35
KC-47500	Soft Touch II surgical mask	Ties	Blue	50	9.85
KC-47147	FLUIDSHIELD fog-free procedure mask, resists fluid penetration. With splashguard visor	Earloops	Orange	25	32.85



**Buy more
and save**

Harley Davidson® - HD400 Series

- Bring your Harley® to the lab!
- Features the Harley Davidson® logo on each frame
- Rugged looking, nonslip uni-lens that fits a broad range of faces
- Retainer Cord Included
- Compliance: ANSI Z87.1-2003

Harley Davidson® - HD400 Series

Part No.	Lens Color	Frame Color	Each	10
HDG-HD-400	Clear	Black	\$6.45	\$59.00*
HDG-HD-401	Indoor/Outdoor Mirror	Black	8.90	79.00*
HDG-HD-402	Silver Mirror	Black	8.90	79.00*

*Prices valid through October 2006



UVX-S1359C

Uvex - Astrospec 3000®

- Leading the way in providing reliable, practical protection
- Single impact resistant polycarbonate lens
- Temple length adjustable to 4 positions for better fit
- Sideshields and brow guard molded in
- Compliance: ANSI Z87.1-2003

Uvex - Astrospec 3000

Part No.	Lens Color	Frame Color	Each	10
UVX-S1359C	Clear	Black	\$5.20	\$49.25
UVX-S1369	Gray	Black	5.30	50.00
UVX-S1379	Mirror	Black	6.25	59.00



UVX-S4501

Uvex-Falcon®

- Features a frameless design with patented uni-lens for outstanding peripheral coverage.
- Weightless comfort and superior coverage providing complete and unobstructed vision
- Compliance with ANSI Z87+

Uvex Falcon®

Part No.	Lens Color	Frame Color	Each	10
UVX-S4500	Clear	Black	\$3.65	\$34.00
UVX-S4501	Espresso	Black	4.25	39.50
UVX-S4502X	Amber	Black	4.70	43.50



UVX-S3960C



UVX-S3961C

Uvex - Stealth® Goggles

- Low profile contemporary styling
- Durable polypropylene frame conforms gently to facial contours
- Lens design offers excellent optics and peripheral vision
- Compliance: ANSI Z87.1-1989

Uvex - Stealth

Part No.	Lens Description	Venting	Each	10
UVX-S3960C	Clear anti-fog & anti-splash	Indirect	\$9.30	\$86.80
UVX-S3961C	Grey anti-fog & anti-splash	Indirect	10.00	92.95

AO Safety - Virtua®

- Stylish and economical
- Contoured flexible temples for comfort
- Hard coat to protect against scratching, static and chemical splash
- Retainer cord not included
- Compliance: ANSI Z87.1-2003

AOS-11326

AO Safety - Virtua

Part No.	Lens Color	Frame Color	Each	10
AOS-11326	Clear	Clear	\$1.45	\$13.35
AOS-11327	Gray	Gray	1.60	14.70
AOS-11328	Indoor/Outdoor Mirror	Clear	2.25	20.80



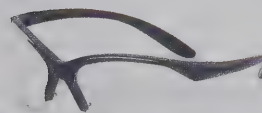
UVX-S2500C

Uvex - Astro OTG 3001®

- Designed to fit over most prescription eyewear
- Single impact resistant polycarbonate lens
- Temple length adjustable to 4 positions for better fit
- Sideshields and brow guard molded in
- Compliance: ANSI Z87.1-2003

Uvex - Astro OTG 3001

Part No.	Lens Color	Frame Color	Each	10
UVX-S2500C	Clear	Black	\$6.20	\$58.90
UVX-S2504	Gray	Black	6.35	60.30



WIL-11150910

Willson - Vapor II®

- Sports Style
- Value Price
- Comfortable sport temples with secure wrap-around fit
- Soft nose bridge conforms to varying shapes preventing slipping
- Compliance with ANSI Z87+

Willson - Vapor II

Part No.	Lens Color	Frame Color	Each	10
WIL-11150910	Clear	Black	\$2.15	\$20.00
WIL-11150911	Gray	Black	2.50	23.00
WIL-11150914	Silver Mirror	Black	2.95	27.00



AOS-40300

AO Safety - Centurion® Goggles

- Wrap-around design for maximum visibility
- Designed to fit over most prescription eyewear
- Can be worn with most half mask respirators
- Compliance: ANSI Z87.1-1989

AO Safety - Centurion

Part No.	Lens Description	Venting	Each	10
AOS-40300	Clear	Direct	\$4.15	\$38.40
AOS-40301	Clear, Anti-fog	Direct	5.40	50.40
AOS-40305	Clear Anti-fog & Anti-splash	Indirect	5.80	53.90

**Keeping personal protection safe,
sensible and simple.**

We feature only personal protection items from industry recognized, world class leaders in safety. Brands like 3M, Uvex, Kimberly Clark, and Ansell are your assurance of high quality. Please visit our website @ www.smallparts.com for the latest additions to our safety line.



E.A.R. Classic® Disposable Foam Earplug

- Most popular earplug in the world
- NRR 29dB
- The E.A.R.® yellow color is your assurance of proven protection
- Moisture resistant dermatologically safe foam is non-irritating
- Slow recovery PVC foam provides comfort with low pressure

Disposable Earplugs

Part No.	Description	Pairs per Box	Price Per Box
EAR-310-1001	EAR Classic Disposable Foam Earplug, Uncorded	200	\$22.15
EAR-310-1060	EAR Classic Disposable Foam Earplug, Uncorded - Convenience Pack	30	4.85
EAR-311-1101	EAR Classic Disposable Foam Earplug, Corded	200	22.15



3M™ General Purpose Ear Muff

Durable, lightweight, easy to use ear muff is comfortable for extended wear. Slim, durable plastic ear cups. Soft, foam-filled cushions stay soft after extensive use. Unique molded inserts provide large inner space for the ear and good fit. Wide headband for low pressure and comfortable secure fit. Two-point mounting headband for low evenly distributed pressure and easy handling. Lightweight (7.5 ounces).

Ear Muffs

Part No.	Description	NRR Rating	Each
3M-1435	3M General purpose ear muffs, lightweight design, wide forked headband	23 dB	\$11.20



Kimberly Clark WypAll® Waterless hand wipes

- Convenient container easy to place in area where sink is not available
- Soap, creams or water not required
- Cleans thoroughly

Hand Cleaning & Sanitizing

Part No.	Description	Wipe Color	Wipe Scent	Price per Case
KC-91371	WypAll Waterless hand wipes, 75 wipes per container	Green	Citrus	\$12.50



Kimberly Clark Kimtech Science Wipes®

- Industry standard for labs and research centers
- Absorbent, easily wipes up liquids and dust
- Gentle texture will not scratch delicate surfaces when used wet
- Low lint and low extractables
- Lintguard anti-stat polyshield helps further reduce lint and static buildup
- 100% virgin fibre

Wipes

Part No.	Description	Size	Color	Price per Box
KC-34120	Kimtech Science wipes, single ply in Pop-Up box	4.4" x 8.4"	White	\$3.35
KC-34133	Kimtech Science wipes, single ply in Pop-Up box	11.8" x 11.8"	White	5.40

Kimberly Clark WypAll® L30 Wipes

- Light duty janitorial and maintenance cleaning
- Strong, yet soft enough for personal use

Wipes

Part No.	Description	Size	Color	Price per Box
KC-5812	WypAll wipes in convenient 1/4 fold container	12.5" x 14.4"	White	\$4.50



3M™ Soft Foam Ear Plug

Soft foam ear plugs help reduce pressure in the ear canal for improved comfort. Rolls down small for easier insertion and fit for small ear canals. Hypo-allergenic material. Bright orange color for visibility. Can be combined with ear muffs for additional protection. Noise reduction rating 28 dB.

Disposable Earplugs

Part No.	Description	NRR Rating	Pairs per Box	Price Per Box
3M-1120	3M Soft Foam Earplug with articulated shape for improved fit and hypo-allergenic, Uncorded	28 dB	200	\$15.20*
3M-1130	3M Soft Foam Earplug with articulated shape for improved fit and hypo-allergenic, Corded	28 dB	100	18.50

*Prices valid through October 2006



BLS-1010928

Bilsom Thunder Series Ear Muffs

- Designed with all-day comfort in mind.
- Headband earmuffs feature a unique dual-headband for better positioning and breathability.
- Non-deforming outer headband minimizes pressure on the head.
- Dielectric construction withstands use and abuse, while protecting workers in electrical environments.

Ear Muffs

Part No.	Description	NRR Rating	Each
BLS-1010928	Bilsom Thunder Series earmuffs, ventilated inner headband and dielectric for electrical environments	26 dB	\$7.95
BLS-1010929	Bilsom Thunder Series earmuffs, ventilated inner headband and dielectric for electrical environments	28 dB	14.40



Purell® Instant Hand Sanitizer

- Kills 99.99% of the most common disease-causing germs on hands without rinsing or wiping
- Non toxic, clinically tested

Purell Hand Sanitizer

Part No.	Description	Container Type	Size	Price per
PUR-9606-24	Purell Hand sanitizer	pump bottle	2 ounce	\$2.25
PUR-9631-24	Purell Hand sanitizer with Aloe	bottle	4 ounce	2.50



3M™ Maintenance Sorbent

This high capacity sorbent has a scrim on one side to increase strength and help eliminate linting. It is dispensed from a carrying/dispenser box in the form of a continuous roll with perforations every 16 inches. Utilizing 3M's folded sorbent technology, it can be used as a pillow, pad, roll or boom. Applications range from maintenance to spill response.

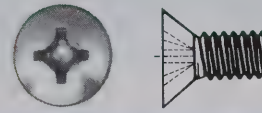
Sorbents

Part No.	Description	Price per Box
3M-M-FL5500DD	3M folded sorbent in continuous roll, perforated every 16"	\$31.50

Stainless Steel 18-8 Phillips Drive Pan Head Machine Screws



Stainless Steel 18-8 Phillips Drive Flat Head Machine Screws



Stainless Steel 18-8 Phillips Pan Head

Part No.	Dimensions in Inches		10	25	100	1000
	Size/Thread	Length				
MPX-0080-02P	#0-80	1/8	\$1.15	\$2.40	\$7.95	\$63.60
MPX-0080-03P	#0-80	3/16	1.05	2.15	7.05	56.40
MPX-0080-04P	#0-80	1/4	1.10	2.25	7.45	59.60
MPX-0080-05P	#0-80	5/16	1.20	2.45	8.15	65.20
MPX-0080-06P	#0-80	3/8	1.20	2.50	8.25	66.00
MPX-0080-08P	#0-80	1/2	1.25	2.55	8.50	68.00
MPX-0172-02P	#1-72	1/8	1.25	2.55	8.50	68.00
MPX-0172-03P	#1-72	3/16	1.30	2.70	9.00	72.00
MPX-0172-04P	#1-72	1/4	1.40	2.85	9.50	76.00
MPX-0172-06P	#1-72	3/8	1.50	3.10	10.25	82.00
MPX-0172-08P	#1-72	1/2	1.60	3.35	11.15	89.00
MPX-0172-16P	#1-72	1	2.30	4.75	15.85	126.80
MPX-0256-02P	#2-56	1/8	-	1.15	3.75	30.00
MPX-0256-03P	#2-56	3/16	-	1.15	3.75	30.00
MPX-0256-04P	#2-56	1/4	-	1.15	3.75	30.00
MPX-0256-06P	#2-56	3/8	-	1.15	3.75	30.00
MPX-0256-08P	#2-56	1/2	-	1.15	3.75	30.00
MPX-0256-12P	#2-56	3/4	-	1.15	3.75	30.00
MPX-0256-16P	#2-56	1	-	1.15	3.75	30.00
MPX-0440-02P	#4-40	1/8	-	1.40	4.65	37.20
MPX-0440-03P	#4-40	3/16	-	1.15	3.75	30.00
MPX-0440-04P	#4-40	1/4	-	1.15	3.75	30.00
MPX-0440-06P	#4-40	3/8	-	1.15	3.75	30.00
MPX-0440-08P	#4-40	1/2	-	1.15	3.75	30.00
MPX-0440-12P	#4-40	3/4	-	1.15	3.75	30.00
MPX-0440-16P	#4-40	1	-	1.15	3.75	30.00
MPX-0632-03P	#6-32	3/16	-	1.15	3.75	30.00
MPX-0632-04P	#6-32	1/4	-	1.15	3.75	30.00
MPX-0632-06P	#6-32	3/8	-	1.15	3.75	30.00
MPX-0632-08P	#6-32	1/2	-	1.15	3.75	30.00
MPX-0632-12P	#6-32	3/4	1.00	2.10	6.95	55.60
MPX-0632-16P	#6-32	1	-	1.35	4.40	35.20
MPX-0632-24P	#6-32	1-1/2	-	1.75	5.75	46.00
MPX-0832-03P	#8-32	3/16	-	1.20	3.90	31.20
MPX-0832-04P	#8-32	1/4	-	1.15	3.75	30.00
MPX-0832-06P	#8-32	3/8	-	1.15	3.75	30.00
MPX-0832-08P	#8-32	1/2	-	1.15	3.75	30.00
MPX-0832-12P	#8-32	3/4	-	1.60	5.30	42.40
MPX-0832-16P	#8-32	1	-	1.95	6.40	51.20
MPX-0832-24P	#8-32	1-1/2	1.20	2.45	8.15	65.20
MPX-1024-04P	#10-24	1/4	-	1.55	5.05	40.40
MPX-1024-06P	#10-24	3/8	-	1.35	4.50	36.00
MPX-1024-08P	#10-24	1/2	-	1.70	5.55	44.40
MPX-1024-12P	#10-24	3/4	1.50	3.15	10.45	83.60
MPX-1024-16P	#10-24	1	1.15	2.35	7.80	62.40
MPX-1024-20P	#10-24	1-1/4	1.35	2.80	9.25	74.00
MPX-1024-24P	#10-24	1-1/2	1.50	3.15	10.45	83.60
MPX-1032-04P	#10-32	1/4	-	1.50	4.95	39.60
MPX-1032-06P	#10-32	3/8	-	1.45	4.85	38.80
MPX-1032-08P	#10-32	1/2	-	1.70	5.55	44.40
MPX-1032-12P	#10-32	3/4	1.05	2.15	7.05	56.40
MPX-1032-16P	#10-32	1	1.10	2.25	7.45	59.60
MPX-1032-24P	#10-32	1-1/2	1.50	3.15	10.45	83.60
MPX-1420-06P	1/4-20	3/8	1.25	2.60	8.70	69.60
MPX-1420-08P	1/4-20	1/2	1.50	3.10	10.30	81.40
MPX-1420-12P	1/4-20	3/4	2.00	4.15	13.75	110.00
MPX-1420-16P	1/4-20	1	2.40	5.00	16.55	132.40
MPX-1420-24P	1/4-20	1-1/2	3.25	6.75	22.40	179.20
MPX-1428-06P	1/4-28	3/8	2.10	4.35	14.50	116.00
MPX-1428-08P	1/4-28	1/2	2.30	4.75	15.70	125.60
MPX-1428-12P	1/4-28	3/4	3.25	6.75	22.50	180.00
MPX-1428-16P	1/4-28	1	4.15	8.65	28.85	230.80
MPX-1428-20P	1/4-28	1-1/4	4.35	9.00	29.95	239.60
MPX-1428-24P	1/4-28	1-1/2	5.40	11.25	37.50	300.00
MPX-1428-32P	1/4-28	2	6.70	13.95	46.50	116.00

Stainless Steel 18-8 Phillips Flat Head

Part No.	Dimensions in Inches		10	25	100	1000
	Size/Thread	Length				
MPX-0080-02F	#0-80	1/8	\$1.15	\$2.40	\$7.95	\$63.60
MPX-0080-03F	#0-80	3/16	1.05	2.15	7.05	56.40
MPX-0080-04F	#0-80	1/4	1.10	2.25	7.45	59.60
MPX-0080-05F	#0-80	5/16	1.20	2.45	8.15	65.20
MPX-0080-06F	#0-80	3/8	1.20	2.50	8.25	66.00
MPX-0080-08F	#0-80	1/2	1.25	2.55	8.50	68.00
MPX-0172-02F	#1-72	1/8	1.25	2.55	8.50	68.00
MPX-0172-03F	#1-72	3/16	1.30	2.70	9.00	72.00
MPX-0172-04F	#1-72	1/4	1.40	2.85	9.50	76.00
MPX-0172-06F	#1-72	3/8	1.50	3.10	10.25	82.00
MPX-0172-08F	#1-72	1/2	1.60	3.35	11.15	89.00
MPX-0172-16F	#1-72	1	2.30	4.75	15.85	126.80
MPX-0256-02F	#2-56	1/8	-	1.15	3.75	30.00
MPX-0256-03F	#2-56	3/16	-	1.15	3.75	30.00
MPX-0256-04F	#2-56	1/4	-	1.15	3.75	30.00
MPX-0256-06F	#2-56	3/8	-	1.15	3.75	30.00
MPX-0256-08F	#2-56	1/2	-	1.15	3.75	30.00
MPX-0256-12F	#2-56	3/4	-	1.15	3.75	30.00
MPX-0256-16F	#2-56	1	-	1.15	3.75	30.00
MPX-0440-02F	#4-40	1/8	-	1.40	4.65	37.20
MPX-0440-03F	#4-40	3/16	-	1.15	3.75	30.00
MPX-0440-04F	#4-40	1/4	-	1.15	3.75	30.00
MPX-0440-06F	#4-40	3/8	-	1.15	3.75	30.00
MPX-0440-08F	#4-40	1/2	-	1.15	3.75	30.00
MPX-0440-12F	#4-40	3/4	-	1.15	3.75	30.00
MPX-0440-16F	#4-40	1	-	1.15	3.75	30.00
MPX-0632-03F	#6-32	3/16	-	1.15	3.75	30.00
MPX-0632-04F	#6-32	1/4	-	1.15	3.75	30.00
MPX-0632-06F	#6-32	3/8	-	1.15	3.75	30.00
MPX-0632-08F	#6-32	1/2	-	1.15	3.75	30.00
MPX-0632-12F	#6-32	3/4	-	1.15	3.75	30.00
MPX-0632-16F	#6-32	1	-	1.35	4.40	35.20
MPX-0632-24F	#6-32	1-1/2	-	1.75	5.75	46.00
MPX-0832-03F	#8-32	3/16	-	1.20	3.90	31.20
MPX-0832-04F	#8-32	1/4	-	1.15	3.75	30.00
MPX-0832-06F	#8-32	3/8	-	1.15	3.75	30.00
MPX-0832-08F	#8-32	1/2	-	1.15	3.75	30.00
MPX-0832-12F	#8-32	3/4	-	1.60	5.30	42.40
MPX-0832-16F	#8-32	1	-	1.95	6.40	51.20
MPX-0832-24F	#8-32	1-1/2	1.20	2.45	8.15	65.20
MPX-1024-04F	#10-24	1/4	-	1.55	5.05	40.40
MPX-1024-06F	#10-24	3/8	-	1.35	4.50	36.00
MPX-1024-08F	#10-24	1/2	-	1.70	5.55	44.40
MPX-1024-12F	#10-24	3/4	-	1.80	5.95	47.60
MPX-1024-16F	#10-24	1	1.15	2.35	7.80	62.40
MPX-1024-20F	#10-24	1-1/4	1.35	2.80	9.25	74.00
MPX-1024-24F	#10-24	1-1/2	1.50	3.15	10.45	83.60
MPX-1032-04F	#10-32	1/4	-	1.50	4.95	39.60
MPX-1032-06F	#10-32	3/8	-	1.45	4.85	38.80
MPX-1032-08F	#10-32	1/2	-	1.70	5.55	44.40
MPX-1032-12F	#10-32	3/4	1.05	2.15	7.05	56.40
MPX-1032-16F	#10-32	1	1.10	2.25	7.45	59.60
MPX-1032-24F	#10-32	1-1/2	1.50	3.15	10.45	83.60
MPX-1420-06F	1/4-20	3/8	1.25	2.60	8.70	69.60
MPX-1420-08F	1/4-20	1/2	1.50	3.10	10.30	81.40
MPX-1420-12F	1/4-20	3/4	2.00	4.15	13.75	110.00
MPX-1420-16F	1/4-20	1	2.40	5.00	16.55	132.40
MPX-1420-24F	1/4-20	1-1/2	3.25	6.75	22.40	179.20
MPX-1428-06F	1/4-28	3/8	2.10	4.35	14.50	116.00
MPX-1428-08F	1/4-28	1/2	2.30	4.75	15.70	125.60
MPX-1428-12F	1/4-28	3/4	3.25	6.75	22.50	180.00
MPX-1428-16F	1/4-28	1	4.15	8.65	28.85	230.80
MPX-1428-20F	1/4-28	1-1/4	4.35	9.00	29.95	239.60
MPX-1428-24F	1/4-28	1-1/2	5.40	11.25	37.50	300.00
MPX-1428-32F	1/4-28	2	6.70	13.95	46.50	116.00

Stainless Steel 18-8 Slotted Binding Head Machine Screws



Stainless Steel 18-8 Slotted Binding Head

Dimensions in Inches						
Part No.	Size/ Thread	Length	10	25	100	1000
MX-000120-01B	#000-120	1/16	\$12.00	\$25.00	\$83.25	\$667.00
MX-000120-02B	#000-120	1/8	12.00	25.00	83.25	667.00
MX-000120-03B	#000-120	3/16	12.00	25.00	83.25	667.00
MX-0090-01B	#00-90	1/16	14.95	25.00	76.95	605.00
MX-0090-02B	#00-90	1/8	14.95	25.00	76.95	605.00
MX-0090-03B	#00-90	3/16	14.95	25.00	76.95	605.00
MX-080-02B	#0-80	1/8	1.05	2.20	7.25	58.00
MX-080-03B	#0-80	3/16	1.10	2.25	7.35	58.80
MX-080-04B	#0-80	1/4	1.10	2.25	7.45	59.60
MX-080-06B	#0-80	3/8	1.10	2.30	7.60	60.80
MX-080-08B	#0-80	1/2	1.30	2.70	8.95	71.60
MX-080-12B	#0-80	3/4	2.25	4.60	15.25	122.00
MX-0172-02B	#1-72	1/8	—	1.75	5.75	46.00
MX-0172-03B	#1-72	3/16	—	1.90	6.25	50.00
MX-0172-04B	#1-72	1/4	1.15	2.35	7.75	62.00
MX-0172-05B	#1-72	5/16	1.70	3.55	11.80	94.40
MX-0172-06B	#1-72	3/8	1.75	3.65	12.10	96.80
MX-0172-08B	#1-72	1/2	2.05	4.20	14.00	112.00
MX-0172-12B	#1-72	3/4	2.15	4.45	14.85	118.80
MX-0256-02B	#2-56	1/8	—	1.05	3.50	28.00
MX-0256-03B	#2-56	3/16	—	1.10	3.55	28.40
MX-0256-04B	#2-56	1/4	—	1.10	3.60	28.80
MX-0256-05B	#2-56	5/16	—	1.10	3.65	29.20
MX-0256-06B	#2-56	3/8	—	1.15	3.70	29.60
MX-0256-07B	#2-56	7/16	—	1.15	3.75	30.00
MX-0256-08B	#2-56	1/2	—	1.20	3.95	31.60
MX-0256-10B	#2-56	5/8	—	1.20	4.00	32.00
MX-0256-12B	#2-56	3/4	—	1.30	4.25	34.00
MX-0256-16B	#2-56	1	—	1.80	5.95	47.60
MX-0440-02B	#4-40	1/8	1.15	2.35	7.75	62.00
MX-0440-03B	#4-40	3/16	—	1.05	3.50	28.00
MX-0440-04B	#4-40	1/4	—	1.10	3.55	28.40
MX-0440-05B	#4-40	5/16	—	1.10	3.60	28.80
MX-0440-06B	#4-40	3/8	—	1.10	3.65	29.20
MX-0440-07B	#4-40	7/16	—	1.10	3.70	29.60
MX-0440-08B	#4-40	1/2	—	1.20	3.95	31.60
MX-0440-10B	#4-40	5/8	—	1.25	4.15	33.20
MX-0440-12B	#4-40	3/4	—	1.30	4.25	34.00
MX-0440-14B	#4-40	7/8	—	1.35	4.35	34.80
MX-0440-16B	#4-40	1	—	1.50	4.95	39.60
MX-0440-20B	#4-40	1-1/4	1.15	2.35	7.75	62.00
MX-0540-03B	#5-40	3/16	1.10	2.30	7.60	60.80
MX-0540-04B	#5-40	1/4	—	1.55	5.15	41.20
MX-0540-06B	#5-40	3/8	—	1.85	6.15	49.20
MX-0540-08B	#5-40	1/2	1.00	2.10	6.95	55.60
MX-0540-12B	#5-40	3/4	1.40	2.85	9.45	75.60
MX-0632-03B	#6-32	3/16	—	1.50	5.00	40.00
MX-0632-04B	#6-32	1/4	—	1.15	3.80	30.40
MX-0632-05B	#6-32	5/16	—	1.10	3.65	29.20
MX-0632-06B	#6-32	3/8	—	1.25	4.10	32.80
MX-0632-07B	#6-32	7/16	—	1.30	4.25	34.00
MX-0632-08B	#6-32	1/2	—	1.35	4.40	35.20
MX-0632-10B	#6-32	5/8	—	1.35	4.50	36.00
MX-0632-12B	#6-32	3/4	—	1.55	5.15	41.20
MX-0632-14B	#6-32	7/8	—	1.60	5.25	42.00
MX-0632-16B	#6-32	1	—	1.65	5.35	42.80
MX-0632-20B	#6-32	1-1/4	1.00	2.10	7.00	56.00
MX-0632-24B	#6-32	1-1/2	1.10	2.25	7.35	58.80
MX-0832-04B	#8-32	1/4	—	1.45	4.85	38.80
MX-0832-05B	#8-32	5/16	—	1.50	4.95	39.60
MX-0832-06B	#8-32	3/8	—	1.55	5.20	41.60
MX-0832-07B	#8-32	7/16	—	1.65	5.35	42.80
MX-0832-08B	#8-32	1/2	—	1.70	5.65	45.20
MX-0832-10B	#8-32	5/8	—	1.85	6.05	48.40
MX-0832-12B	#8-32	3/4	—	1.95	6.40	51.20
MX-0832-14B	#8-32	7/8	1.00	2.10	6.90	55.20
MX-0832-16B	#8-32	1	1.05	2.20	7.25	58.00
MX-0832-20B	#8-32	1-1/4	1.30	2.70	8.95	71.60
MX-0832-24B	#8-32	1-1/2	1.40	2.85	9.35	74.80
MX-1032-04B	#10-32	1/4	1.00	2.10	6.85	54.80
MX-1032-05B	#10-32	5/16	—	1.95	6.50	52.00

Stainless Steel 18-8 Slotted Binding Head (Cont.)

Dimensions in Inches						
Part No.	Size/ Thread	Length	10	25	100	1000
MX-1032-06B	#10-32	3/8	—	1.80	6.00	48.00
MX-1032-07B	#10-32	7/16	—	1.90	6.25	50.00
MX-1032-08B	#10-32	1/2	—	1.95	6.50	52.00
MX-1032-10B	#10-32	5/8	1.15	2.35	7.75	62.00
MX-1032-12B	#10-32	3/4	1.30	2.65	8.75	70.00
MX-1032-14B	#10-32	7/8	1.40	2.90	9.65	77.20
MX-1032-16B	#10-32	1	1.55	3.20	10.55	84.40
MX-1032-20B	#10-32	1-1/4	1.70	3.55	11.75	94.00
MX-1032-24B	#10-32	1-1/2	2.05	4.20	13.85	110.80
MX-1420-06B	1/4-20	3/8	1.90	3.95	13.15	105.20
MX-1420-08B	1/4-20	1/2	2.05	4.30	14.30	114.40
MX-1420-10B	1/4-20	5/8	2.20	4.55	15.05	120.40
MX-1420-12B	1/4-20	3/4	2.25	4.65	15.40	123.20
MX-1420-16B	1/4-20	1	2.30	4.80	15.95	127.60
MX-1420-24B	1/4-20	1-1/2	3.10	6.45	21.45	171.60



Stainless Steel 18-8 Slotted Drive Flat Head Machine Screws

Stainless Steel 18-8 Slotted Drive Flat Head

Dimensions in Inches						
Part No.	Size/ Thread	Length	10	25	100	1000
MX-000120-01F	#000-120	1/16	\$12.00	\$25.00	\$83.25	\$667.00
MX-000120-02F	#000-120	1/8	12.00	25.00	83.25	667.00
MX-000120-03F	#000-120	3/16	12.00	25.00	83.25	667.00
MX-0090-01F	#00-90	1/16	12.00	25.00	76.95	605.00
MX-0090-02F	#00-90	1/8	12.00	25.00	76.95	605.00
MX-0090-03F	#00-90	3/16	12.00	25.00	76.95	605.00
MX-0080-02F	#0-80	1/8	1.05	2.20	7.25	58.00
MX-0080-03F	#0-80	3/16	1.10	2.25	7.35	58.80
MX-0080-04F	#0-80	1/4	1.10	2.25	7.45	59.60
MX-0080-06F	#0-80	3/8	1.10	2.30	7.60	60.80
MX-0080-08F	#0-80	1/2	1.30	2.70	8.95	71.60
MX-0080-12F	#0-80	3/4	2.25	4.60	15.25	122.00
MX-0172-02F	#1-72	1/8	—	1.75	5.75	46.00
MX-0172-03F	#1-72	3/16	—	1.90	6.25	50.00
MX-0172-04F	#1-72	1/4	1.15	2.35	7.75	62.00
MX-0172-05F	#1-72	5/16	1.70	3.55	11.80	94.40
MX-0172-06F	#1-72	3/8	1.75	3.65	12.10	96.80
MX-0172-08F	#1-72	1/2	2.05	4.20	14.00	112.00
MX-0172-12F	#1-72	3/4	2.15	4.45	14.85	118.80
MX-0256-02F	#2-56	1/8	—	1.05	3.50	28.00
MX-0256-03F	#2-56	3/16	—	1.10	3.55	28.40
MX-0256-04F	#2-56	1/4	—	1.10	3.60	28.80
MX-0256-05F	#2-56	5/16	—	1.10	3.65	29.20
MX-0256-06F	#2-56	3/8	—	1.15	3.70	29.60
MX-0256-07F	#2-56	7/16	—	1.15	3.75	30.00
MX-0256-08F	#2-56	1/2	—	1.20	3.95	31.60
MX-0256-10F	#2-56	5/8	—	1.20	4.00	32.00
MX-0256-12F	#2-56	3/4	—	1.30	4.25	34.00
MX-0256-16F	#2-56	1	—	1.80	5.95	47.60
MX-0440-02F	#4-40	1/8	1.15	2.35	7.75	62.00
MX-0440-03F	#4-40	3/16	—	1.05	3.50	28.00
MX-0440-04F	#4-40	1/4	—	1.10	3.55	28.40
MX-0440-05F	#4-40	5/16	—	1.10	3.60	28.80
MX-0440-06F	#4-40	3/8	—	1.10	3.65	29.20
MX-0440-07F	#4-40	7/16	—	1.10	3.70	29.60
MX-0440-08F	#4-40	1/2	—	1.20	3.95	31.60
MX-0440-10F	#4-40	5/8	—	1.25	4.15	33.20
MX-0440-12F	#4-40	3/4	—	1.30	4.25	34.00
MX-0440-14F	#4-40	7/8	—	1.35	4.35	34.80
MX-0440-16F	#4-40	1	—	1.50	4.95	39.60
MX-0440-20F	#4-40	1-1/4	1.15	2.35	7.75	62.00
MX-0540-03F	#5-40	3/16	1.10	2.30	7.60	60.80
MX-0540-04F	#5-40	1/4	—	1.55	5.15	41.20
MX-0540-06F	#5-40	3/8	—	1.85	6.15	49.20
MX-0540-08F	#5-40	1/2	1.00	2.10	6.95	55.60
MX-0540-12F	#5-40	3/4	1.40	2.85	9.45	75.60

Continued next page

Stainless Steel 18-8 Slotted Drive Flat Head Machine Screws

Stainless Steel 18-8 Slotted Drive Flat Head

Dimensions in Inches						
Part No.	Size/Thread	Length	10	25	100	1000
MX-0632-03F	#6-32	3/16	—	\$1.50	\$5.00	\$40.00
MX-0632-04F	#6-32	1/4	—	1.15	3.80	30.40
MX-0632-05F	#6-32	5/16	—	1.10	3.65	29.20
MX-0632-06F	#6-32	3/8	—	1.25	4.10	32.80
MX-0632-07F	#6-32	7/16	—	1.30	4.25	34.00
MX-0632-08F	#6-32	1/2	—	1.35	4.40	35.20
MX-0632-10F	#6-32	5/8	—	1.35	4.50	36.00
MX-0632-12F	#6-32	3/4	—	1.55	5.15	41.20
MX-0632-14F	#6-32	7/8	—	1.60	5.25	42.00
MX-0632-16F	#6-32	1	—	1.65	5.35	42.80
MX-0632-20F	#6-32	1-1/4	1.00	2.10	7.00	56.00
MX-0632-24F	#6-32	1-1/2	1.10	2.25	7.35	58.80
MX-0832-04F	#8-32	1/4	—	1.45	4.85	38.80
MX-0832-05F	#8-32	5/16	—	1.50	4.95	39.60
MX-0832-06F	#8-32	3/8	—	1.55	5.20	41.60
MX-0832-07F	#8-32	7/16	—	1.65	5.35	42.80
MX-0832-08F	#8-32	1/2	—	1.70	5.65	45.20
MX-0832-10F	#8-32	5/8	—	1.85	6.05	48.40



Stainless Steel 18-8 Fillister Head Slotted Drive Machine Screws

Stainless Steel 18-8 Fillister Head Slotted Drive

Dimensions in Inches						
Part No.	Size/Thread	Length	10	25	100	1000
MX-0000160-01FL	#0000-160	1/16	\$40.50	\$88.75	\$302.00	—
MX-0000160-02FL	#0000-160	1/8	40.50	88.75	302.00	—
MX-0000160-03FL	#0000-160	3/16	40.50	88.75	302.00	—
MX-000120-01FL	#000-120	1/16	12.00	25.00	83.25	667.00
MX-000120-02FL	#000-120	1/8	12.00	25.00	83.25	667.00
MX-000120-03FL	#000-120	3/16	12.00	25.00	83.25	667.00
MX-0090-01FL	#00-90	1/16	12.00	25.00	76.95	605.00
MX-0090-02FL	#00-90	1/8	12.00	25.00	76.95	605.00
MX-0090-03FL	#00-90	3/16	12.00	25.00	76.95	605.00
MX-0080-02FL	#0-80	1/8	1.05	2.20	7.25	58.00
MX-0080-03FL	#0-80	3/16	1.10	2.25	7.35	58.80
MX-0080-04FL	#0-80	1/4	1.10	2.25	7.45	59.60
MX-0080-06FL	#0-80	3/8	1.10	2.30	7.60	60.80
MX-0080-08FL	#0-80	1/2	1.30	2.70	8.95	71.60
MX-0080-12FL	#0-80	3/4	2.25	4.60	15.25	122.00
MX-0172-02FL	#1-72	1/8	—	1.75	5.75	46.00
MX-0172-03FL	#1-72	3/16	—	1.90	6.25	50.00
MX-0172-04FL	#1-72	1/4	1.15	2.35	7.75	62.00
MX-0172-05FL	#1-72	5/16	1.70	3.55	11.80	94.40
MX-0172-06FL	#1-72	3/8	1.75	3.65	12.10	96.80
MX-0172-08FL	#1-72	1/2	2.05	4.20	14.00	112.00
MX-0172-12FL	#1-72	3/4	2.15	4.45	14.85	118.80
MX-0256-02FL	#2-56	1/8	—	1.05	3.50	28.00
MX-0256-03FL	#2-56	3/16	—	1.10	3.55	28.40
MX-0256-04FL	#2-56	1/4	—	1.10	3.60	28.80
MX-0256-05FL	#2-56	5/16	—	1.10	3.65	29.20
MX-0256-06FL	#2-56	3/8	—	1.15	3.70	29.60
MX-0256-07FL	#2-56	7/16	—	1.15	3.75	30.00
MX-0256-08FL	#2-56	1/2	—	1.20	3.95	31.60
MX-0256-10FL	#2-56	5/8	—	1.20	4.00	32.00
MX-0256-12FL	#2-56	3/4	—	1.30	4.25	34.00
MX-0256-16FL	#2-56	1	—	1.80	5.95	47.60
MX-0440-02FL	#4-40	1/8	1.15	2.35	7.75	62.00
MX-0440-03FL	#4-40	3/16	—	1.05	3.50	28.00
MX-0440-04FL	#4-40	1/4	—	1.10	3.55	28.40
MX-0440-05FL	#4-40	5/16	—	1.10	3.60	28.80
MX-0440-06FL	#4-40	3/8	—	1.10	3.65	29.20
MX-0440-07FL	#4-40	7/16	—	1.10	3.70	29.60
MX-0440-08FL	#4-40	1/2	—	1.20	3.95	31.60
MX-0440-10FL	#4-40	5/8	—	1.25	4.15	33.20
MX-0440-12FL	#4-40	3/4	—	1.30	4.25	34.00
MX-0440-14FL	#4-40	7/8	—	1.35	4.35	34.80
MX-0440-16FL	#4-40	1	—	1.50	4.95	39.60
MX-0440-20FL	#4-40	1-1/4	1.15	2.35	7.75	62.00

Stainless Steel 18-8 Fillister Head Slotted Drive (cont.)

Dimensions in Inches						
Part No.	Size/Thread	Length	10	25	100	1000
MX-0540-03FL	#5-40	3/16	\$1.10	\$2.30	\$7.60	\$60.80
MX-0540-04FL	#5-40	1/4	—	1.55	5.15	41.20
MX-0540-06FL	#5-40	3/8	—	1.85	6.15	49.20
MX-0540-08FL	#5-40	1/2	1.00	2.10	6.95	55.60
MX-0540-12FL	#5-40	3/4	1.40	2.85	9.45	75.60
MX-0632-03FL	#6-32	3/16	—	1.50	5.00	40.00
MX-0632-04FL	#6-32	1/4	—	1.15	3.80	30.40
MX-0632-05FL	#6-32	5/16	—	1.10	3.65	29.20
MX-0632-06FL	#6-32	3/8	—	1.25	4.10	32.80
MX-0632-07FL	#6-32	7/16	—	1.30	4.25	34.00
MX-0632-08FL	#6-32	1/2	—	1.35	4.40	35.20
MX-0632-10FL	#6-32	5/8	—	1.35	4.50	36.00
MX-0632-12FL	#6-32	3/4	—	1.55	5.15	41.20
MX-0632-14FL	#6-32	7/8	—	1.60	5.25	42.00
MX-0632-16FL	#6-32	1	—	1.65	5.35	42.80
MX-0632-20FL	#6-32	1-1/4	1.00	2.10	7.00	56.00
MX-0632-24FL	#6-32	1-1/2	1.10	2.25	7.35	58.80
MX-0832-04FL	#8-32	1/4	—	1.45	4.85	38.80
MX-0832-05FL	#8-32	5/16	—	1.50	4.95	39.60
MX-0832-06FL	#8-32	3/8	—	1.55	5.20	41.60
MX-0832-07FL	#8-32	7/16	—	1.65	5.35	42.80
MX-0832-08FL	#8-32	1/2	—	1.70	5.65	45.20
MX-0832-10FL	#8-32	5/8	—	1.85	6.05	48.40
MX-0832-12FL	#8-32	3/4	—	1.95	6.40	51.20
MX-0832-14FL	#8-32	7/8	1.00	2.10	6.90	55.20
MX-0832-16FL	#8-32	1	1.05	2.20	7.25	58.00
MX-0832-20FL	#8-32	1-1/4	1.30	2.70	8.95	71.60
MX-0832-24FL	#8-32	1-1/2	1.40	2.85	9.35	74.80
MX-1032-04FL	#10-32	1/4	1.00	2.10	6.85	54.80
MX-1032-05FL	#10-32	5/16	—	1.95	6.50	52.00
MX-1032-06FL	#10-32	3/8	—	1.80	6.00	48.00
MX-1032-07FL	#10-32	7/16	—	1.90	6.25	50.00
MX-1032-08FL	#10-32	1/2	—	1.95	6.50	52.00
MX-1032-10FL	#10-32	5/8	1.15	2.35	7.75	62.00
MX-1032-12FL	#10-32	3/4	1.30	2.65	8.75	70.00
MX-1032-14FL	#10-32	7/8	1.40	2.90	9.65	77.20
MX-1032-16FL	#10-32	1	1.55	3.20	10.55	84.40
MX-1032-20FL	#10-32	1-1/4	1.70	3.55	11.75	94.00
MX-1032-24FL	#10-32	1-1/2	2.05	4.20	13.85	110.80
MX-1420-06FL	1/4-20	3/8	1.90	3.95	13.15	105.20
MX-1420-08FL	1/4-20	1/2	2.05	4.30	14.30	114.40
MX-1420-10FL	1/4-20	5/8	2.20	4.55	15.05	120.40
MX-1420-12FL	1/4-20	3/4	2.25	4.65	15.40	123.20
MX-1420-16FL	1/4-20	1	2.30	4.80	15.95	127.60
MX-1420-24FL	1/4-20	1-1/2	3.10	6.45	21.45	171.60



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Metric Stainless Steel 18-8 Phillips Flat and Pan Head Machine Screws

Our catalog describes Metric Screws using the ISO metric system. Unless otherwise noted, we define these elements as follows:

Nominal Screw Size: "M" plus the millimeter size of screw.

Pitch: Distance between two corresponding points on adjacent screw threads. Shown as 0.4, 0.5, 0.7, etc. in millimeters (mm).

Major Diameter: Outside diameter of screw thread: 2.00, 3.00, etc. in millimeters (mm).

Length: **Phillips Flat Head:** Overall including the head.

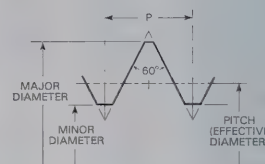
Phillips Pan Head: The threaded length of screw to underside of head, 6, 8, 10, etc. in millimeters (mm).



Phillips Drive
Flat Head 82°



Phillips Drive
Pan Head 82°



Metric Stainless Steel 18-8 Phillips Flat Head (A2)

Dimensions in Millimeters							
Part No.	Size	Pitch	Major Diameter	Length	10	25	100
MPX-M02/04F	M2	0.4	2	4	—	\$1.15	\$3.85
MPX-M02/06F	M2	0.4	2	6	—	1.20	3.95
MPX-M02/08F	M2	0.4	2	8	—	1.35	4.50
MPX-M02/10F	M2	0.4	2	10	—	1.55	5.10
MPX-M02/12F	M2	0.4	2	12	—	1.65	5.40
MPX-M02/16F	M2	0.4	2	16	—	1.75	5.75
MPX-M02/20F	M2	0.4	2	20	—	2.05	6.80
MPX-M025/4F	M2.5	0.45	2.5	4	—	1.90	6.30
MPX-M025/6F	M2.5	0.45	2.5	6	—	1.25	4.05
MPX-M025/8F	M2.5	0.45	2.5	8	—	1.30	4.25
MPX-M025/10F	M2.5	0.45	2.5	10	—	1.45	4.75
MPX-M025/12F	M2.5	0.45	2.5	12	—	1.80	5.95
MPX-M025/16F	M2.5	0.45	2.5	16	1.00	2.05	6.80
MPX-M025/20F	M2.5	0.45	2.5	20	1.30	2.70	8.90
MPX-M03/05F	M3	0.5	3	5	—	1.40	4.70
MPX-M03/06F	M3	0.5	3	6	—	1.55	5.15
MPX-M03/10F	M3	0.5	3	10	—	1.65	5.40
MPX-M03/12F	M3	0.5	3	12	—	1.85	6.15
MPX-M03/20F	M3	0.5	3	20	—	2.00	6.70
MPX-M03/25F	M3	0.5	3	25	1.10	2.25	7.50
MPX-M04/06F	M4	0.7	4	6	—	1.75	5.80
MPX-M04/10F	M4	0.7	4	10	1.10	2.25	7.50
MPX-M04/12F	M4	0.7	4	12	1.35	2.75	9.20
MPX-M04/20F	M4	0.7	4	20	1.50	3.15	10.40
MPX-M04/25F	M4	0.7	4	25	1.55	3.25	10.85
MPX-M04/40F	M4	0.7	4	40	2.30	4.80	15.95
MPX-M05/10F	M5	0.8	5	10	1.95	4.05	13.50
MPX-M05/12F	M5	0.8	5	12	2.05	4.20	14.00
MPX-M05/20F	M5	0.8	5	20	2.15	4.50	15.00
MPX-M05/25F	M5	0.8	5	25	2.10	4.35	17.80
MPX-M05/40F	M5	0.8	5	40	4.40	9.15	30.50
MPX-M06/10F	M6	1	6	10	1.90	3.95	13.20
MPX-M06/12F	M6	1	6	12	2.00	4.10	13.60
MPX-M06/20F	M6	1	6	20	2.65	5.45	18.20
MPX-M06/25F	M6	1	6	25	2.85	5.95	19.80
MPX-M06/40F	M6	1	6	40	4.75	9.85	32.75
MPX-M06/60F	M6	1	6	60	5.25	10.90	36.25
MPX-M08/12F	M8	1.25	8	12	3.55	7.35	24.50
MPX-M08/20F	M8	1.25	8	20	3.80	7.85	26.20
MPX-M08/25F	M8	1.25	8	25	11.40	11.40	37.90
MPX-M08/40F	M8	1.25	8	40	6.35	13.20	43.90

Metric Stainless Steel 18-8 Phillips Pan Head (A2)

Dimensions in Millimeters							
Part No.	Size	Pitch	Major Dia.	Length	10	25	100
MPX-M02/04P	M2	0.4	2	4	—	\$1.15	\$3.85
MPX-M02/06P	M2	0.4	2	6	—	1.20	3.95
MPX-M02/08P	M2	0.4	2	8	—	1.35	4.50
MPX-M02/10P	M2	0.4	2	10	—	1.55	5.10
MPX-M02/12P	M2	0.4	2	12	—	1.65	5.40
MPX-M02/16P	M2	0.4	2	16	—	1.75	5.75
MPX-M02/20P	M2	0.4	2	20	—	2.05	6.80
MPX-M025/04P	M2.5	0.45	2.5	4	—	1.90	6.30
MPX-M025/06P	M2.5	0.45	2.5	6	—	1.25	4.05
MPX-M025/08P	M2.5	0.45	2.5	8	—	1.30	4.25
MPX-M025/10P	M2.5	0.45	2.5	10	—	1.45	4.75
MPX-M025/12P	M2.5	0.45	2.5	12	—	1.80	5.95
MPX-M025/16P	M2.5	0.45	2.5	16	1.00	2.05	6.80
MPX-M025/20P	M2.5	0.45	2.5	20	1.30	2.70	8.90
MPX-M03/05P	M3	0.5	3	5	—	1.40	4.70
MPX-M03/06P	M3	0.5	3	6	—	1.55	5.15
MPX-M03/10P	M3	0.5	3	10	—	1.65	5.40
MPX-M03/12P	M3	0.5	3	12	—	1.85	6.15
MPX-M03/20P	M3	0.5	4	20	—	2.00	6.70
MPX-M03/25P	M3	0.5	4	25	1.10	2.25	7.50
MPX-M04/06P	M4	0.7	4	6	—	1.75	5.80
MPX-M04/10P	M4	0.7	4	10	1.10	2.25	7.50
MPX-M04/12P	M4	0.7	4	12	1.35	2.75	9.20
MPX-M04/20P	M4	0.7	4	20	1.50	3.15	10.40
MPX-M04/25P	M4	0.7	4	25	1.55	3.25	10.85
MPX-M04/40P	M4	0.7	4	40	1.55	3.25	15.95
MPX-M05/10P	M5	0.8	5	10	1.95	4.05	13.50
MPX-M05/12P	M5	0.8	5	12	2.05	4.20	14.00
MPX-M05/20P	M5	0.8	5	20	2.15	4.50	15.00
MPX-M05/25P	M5	0.8	5	25	2.10	4.35	17.80
MPX-M05/40P	M5	0.8	5	40	4.40	9.15	30.50
MPX-M06/10P	M6	1	6	10	1.90	3.95	13.20
MPX-M06/12P	M6	1	6	12	2.00	4.10	13.60
MPX-M06/20P	M6	1	6	20	2.65	5.45	18.20
MPX-M06/25P	M6	1	6	25	2.85	5.95	19.80
MPX-M06/40P	M6	1	6	40	4.75	9.85	32.75
MPX-M06/60P	M6	1	6	60	5.25	10.90	36.25
MPX-M08/12P	M8	1.25	8	12	3.55	7.35	24.50
MPX-M08/20P	M8	1.25	8	20	3.80	7.85	26.20
MPX-M08/25P	M8	1.25	8	25	5.50	11.40	37.90
MPX-M08/40P	M8	1.25	8	40	6.35	13.20	43.90

Assortments

Part No.	Size	Pieces per length	# of Nuts/Washers	Lengths in Millimeters	No. of Pieces	Each
MPX-M9000F	M2	25	50	4,6,8,10,12,16,20	800	\$56.05
	M2.5	25	50	4,6,8,10,12,16,20		
	M3	25	50	5,6,10,12,20,25		
MPX-M9100F	M4	10	25	6,10,12,20,25,40	320	54.25
	M5	10	25	10,12,20,25,40		
	M6	10	25	10,12,20,25,40,60		
MPX-M9200F	Contains all six nominal sizes in quantities indicated above.				1120	79.95

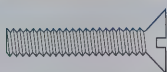
Slotted, Stainless Steel 18-8 (A2) Phillips - Flat
All Assortments except (MPX-M9200F) come packaged in hinged, lidded polypropylene box.
Order Example: MPX-3-20F is M3 x 0.5 x 20mm, Flat Head.

Assortments

Part No.	Size	Pieces per length	# of Nuts/Washers	Lengths in Millimeters	No. of Pieces	Each
MPX-M9000P	M2	25	50	4,6,8,10,12,16,20	800	\$56.05
	M2.5	25	50	4,6,8,10,12,16,20		
	M3	25	50	5,6,10,12,20,25		
MPX-M9100P	M4	10	25	6,10,12,20,25,40	320	54.25
	M5	10	25	10,12,20,25,40		
	M6	10	25	10,12,20,25,40,60		
MPX-M9200P	Contains all six nominal sizes in quantities indicated above.				1120	79.95

All Assortments except (MPX-M9200P) come packaged in hinged, lidded polypropylene box.

Metric Stainless Steel 18-8 90° Countersink Slotted Flat Head Machine Screws



Metric Stainless Steel 18-8 90° Countersink Slotted Flat Head DIN-963

Dimensions in Millimeter							
Part No.	Size	Pitch	Major Dia.	Length*	10	25	100
MX-M03/10F	M3	0.5	3	10	—	\$1.35	\$4.40
MX-M03/12F	M3	0.5	3	12	—	1.50	5.00
MX-M03/20F	M3	0.5	4	20	1.10	2.25	7.35
MX-M04/10F	M4	0.7	4	10	—	2.00	6.65
MX-M04/12F	M4	0.7	4	12	1.05	2.15	7.05
MX-M04/20F	M4	0.7	4	20	1.35	2.80	9.30
MX-M05/10F	M5	0.8	5	10	1.35	2.75	9.10
MX-M05/12F	M5	0.8	5	12	1.65	3.45	11.50
MX-M05/20F	M5	0.8	5	20	1.75	3.65	12.10
MX-M06/12F	M6	1	6	12	3.15	6.60	22.00
MX-M06/20F	M6	1	6	20	2.1	4.40	14.65
MX-M06/25F	M6	1	6	25	2.25	4.65	15.35
MX-M06/40F	M6	1	6	40	4.05	8.40	28.00
MX-M08/20F	M8	1.25	8	20	3.85	8.00	26.50
MX-M08/25F	M8	1.25	8	25	5.45	11.30	37.60

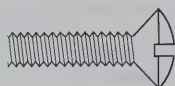
*Length over-all

Assortments

Size	Pitch	Major Diameter	Lengths		
M3	0.5 mm	3 mm	10 mm	12 mm	20 mm
M4	0.7 mm	4 mm	10 mm	12 mm	20 mm
M5	0.8 mm	5 mm	10 mm	12 mm	20 mm
M6	1.0 mm	6 mm	12 mm	20 mm	25 mm
MX-M9000F	Flat Head				\$35.50

The 330-piece assortment contains 10 Slotted Machine Screws in each nominal size and each corresponding length indicated below, plus 25 hex nuts and 25 flat washers for each nominal size.

Metric Stainless Steel 18-8 90° Countersink Slotted Oval Head Machine Screws



Metric Stainless Steel 18-8 90° Countersink Slotted Oval Head DIN-964

Dimensions in Millimeter							
Part No.	Size	Pitch	Major Dia.	Length*	10	25	100
MMOX-3-10	M3	0.5	3	10	—	\$1.35	\$4.40
MMOX-3-12	M3	0.5	3	12	—	1.50	5.00
MMOX-3-20	M3	0.5	4	20	1.10	2.25	7.35
MMOX-4-10	M4	0.7	4	10	—	2.00	6.65
MMOX-4-12	M4	0.7	4	12	1.05	2.15	7.05
MMOX-4-20	M4	0.7	4	20	1.35	2.80	9.30
MMOX-5-10	M5	0.8	5	10	1.35	2.75	9.10
MMOX-5-12	M5	0.8	5	12	1.65	3.45	11.50
MMOX-5-20	M5	0.8	5	20	1.75	3.65	12.10
MMOX-6-12	M6	1	6	12	3.15	6.60	22.00
MMOX-6-20	M6	1	6	20	2.10	4.40	14.65
MMOX-6-25	M6	1	6	25	2.25	4.65	15.35
MMOX-6-40	M6	1	6	40	4.05	8.40	28.00
MMOX-8-20	M8	1.25	8	20	3.85	8.00	26.50
MMOX-8-25	M8	1.25	8	25	5.45	11.30	37.60

*Length over-all

Assortments

Size	Pitch	Major Diameter	Lengths		
M3	0.5 mm	3 mm	10 mm	12 mm	20 mm
M4	0.7 mm	4 mm	10 mm	12 mm	20 mm
M5	0.8 mm	5 mm	10 mm	12 mm	20 mm
M6	1.0 mm	6 mm	12 mm	20 mm	25 mm
MMOX-9000	Oval Head				\$35.50

This 330-piece assortment contains 10 Slotted Machine Screws in each nominal size and each corresponding length indicated below, plus 25 hex nuts and 25 flat washers for each nominal size.



Cheese Head
Din 84

Metric Stainless Steel 18-8 Slotted Cheese Head Machine Screws

Metric Stainless Steel 18-8 Slotted Cheese Head DIN-84

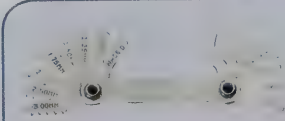
Dimensions in Millimeters							
Part No.	Size	Pitch	Major Dia.	Length*	10	25	100
MX-M01/03C	M1	0.25	1	3	\$9.85	\$20.50	\$66.75
MX-M01/05C	M1	0.25	1	5	10.95	22.75	75.75
MX-M014/03C	M1.4	0.3	1.4	3	9.05	18.85	62.80
MX-M014/05C	M1.4	0.3	1.4	5	10.05	18.85	69.60
MX-M02/04C	M2	0.4	2	4	—	1.15	3.85
MX-M02/06C	M2	0.4	2	6	—	1.20	3.95
MX-M02/08C	M2	0.4	2	8	—	1.35	4.50
MX-M02/10C	M2	0.4	2	10	—	1.55	5.10
MX-M02/12C	M2	0.4	2	12	—	1.65	5.40
MX-M02/16C	M2	0.4	2	16	—	1.75	5.75
MX-M02/20C	M2	0.4	2	20	—	2.05	6.80
MX-M025/04C	M2.5	0.45	2.5	4	—	1.90	6.30
MX-M025/06C	M2.5	0.45	2.5	6	—	1.25	4.05
MX-M025/08C	M2.5	0.45	2.5	8	—	1.30	4.25
MX-M025/10C	M2.5	0.45	2.5	10	—	1.45	4.75
MX-M025/12C	M2.5	0.45	2.5	12	—	1.80	5.95
MX-M025/16C	M2.5	0.45	2.5	16	1.00	2.05	6.80
MX-M025/20C	M2.5	0.45	2.5	20	1.30	2.70	8.90
MX-M03/05C	M3	0.5	3	5	—	1.40	4.70
MX-M03/06C	M3	0.5	3	6	—	1.55	5.15
MX-M03/10C	M3	0.5	3	10	—	1.65	5.40
MX-M03/12C	M3	0.5	3	12	—	1.85	6.15
MX-M03/20C	M3	0.5	4	20	—	2.00	6.70
MX-M03/25C	M3	0.5	4	25	1.10	2.25	7.50
MX-M04/06C	M4	0.7	4	6	—	1.75	5.80
MX-M04/10C	M4	0.7	4	10	1.10	2.25	7.50
MX-M04/12C	M4	0.7	4	12	1.35	2.75	9.20
MX-M04/20C	M4	0.7	4	20	1.50	3.15	10.40
MX-M04/25C	M4	0.7	4	25	1.55	3.25	10.85
MX-M04/40C	M4	0.7	4	40	1.55	3.25	10.85
MX-M05/10C	M5	0.8	5	10	1.95	4.05	13.50
MX-M05/12C	M5	0.8	5	12	2.05	4.20	14.00
MX-M05/20C	M5	0.8	5	20	2.15	4.50	15.00
MX-M05/25C	M5	0.8	5	25	2.10	4.35	17.80
MX-M05/40C	M5	0.8	5	40	4.40	9.15	30.50
MX-M06/10C	M6	1	6	10	1.90	3.95	13.20
MX-M06/12C	M6	1	6	12	2.00	4.10	13.60
MX-M06/20C	M6	1	6	20	2.65	5.45	18.20
MX-M06/25C	M6	1	6	25	2.85	5.95	19.80
MX-M06/40C	M6	1	6	40	4.75	9.85	32.75
MX-M06/60C	M6	1	6	60	5.25	10.90	36.25
MX-M08/12C	M8	1.25	8	12	3.55	7.35	24.50
MX-M08/20C	M8	1.25	8	20	3.80	7.85	26.20
MX-M08/25C	M8	1.25	8	25	5.50	11.40	37.90
MX-M08/40C	M8	1.25	8	40	6.35	13.20	43.90

*Length wide head

Assortments

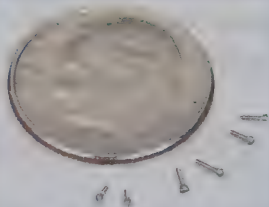
Part No.	Size	Pieces per length	No. of Nuts/ Washers	Length in Millimeters	No. of Pieces	Each
MMX-9000C	M2	25	50	4, 6, 8, 10, 12, 16, 20	800	\$56.05
	M2.5	25	50	4, 6, 8, 10, 12, 16, 20		
	M3	25	50	5, 6, 10, 12, 20, 25		
	M4	10	25	6, 10, 12, 20, 25, 40		
MX-M9000C	M5	10	25	10, 12, 20, 25, 40	320	54.25
	M6	10	25	10, 12, 20, 25, 40, 60		
MX-M9100C	Contains all six nominal sizes in quantities indicated above.				1120	79.95

Machine Screws - Slotted, Stainless Steel 18-8 (A2) - Slotted Cheese
All Assortments except (MX-M9100C) come packaged in hinged, lidded polypropylene box.



Metric Screw Pitch Gauge
16 brass leaves identify "pitch" or distance between threads in millimeters in the range from 0.35 mm to 3.00 mm
STG-MET \$7.25

Stainless Steel 18-8 Slotted Fillister Head Machine Screws



Unified Miniature Thread Series machine screws are provided in these extremely small metric sizes for subminiature applications. Components such as these are commonly used in guidance systems for the aerospace industry, in optical vision instruments, medical devices, and in many electronic products.

Manufactured and deburred to meet NAS721 standards, slotted screws with fillister heads are made of stainless steel 18-8 for good corrosion resistance.

Stainless Steel 303 Miniature Torx® Machine Screws

The Torx® drive system was specifically designed to provide a simple, cost effective solution to the problems inherent in the process of installing and removing fasteners. The star shaped recess incorporates straight vertical walls and the corresponding drive bit has a 15° drive angle virtually eliminating "Cam out" and the excess end load required to install or remove other types of fasteners. Ergonomic studies have shown the system greatly reduces fatigue and muscular stress during manual installation. The system is also highly automatable. The miniature sizes we offer are very difficult to find and are provided in the most popular head styles.



Stainless Steel 303 Pan Head

Dimensions in Inches							
Part No.	Size/Thread	Length	Torx Driver	10	25	100	1000
MTX-0090-01P	#00-90	1/16	T3	\$2.55	\$5.25	\$17.40	\$145.00
MTX-0090-02P	#00-90	1/8	T3	2.55	5.25	17.40	145.00
MTX-0080-02P	#0-80	1/8	T5	1.65	3.45	11.40	95.00
MTX-0080-03P	#0-80	3/16	T5	1.65	3.45	11.40	95.00
MTX-0080-04P	#0-80	1/4	T5	1.65	3.45	11.40	95.00
MTX-0164-02P	#1-64	1/8	T6	1.60	3.30	10.95	91.00
MTX-0164-03P	#1-64	3/16	T6	1.60	3.30	10.95	91.00
MTX-0164-04P	#1-64	1/4	T6	1.60	3.30	10.95	91.00
MTX-0256-02P	#2-56	1/8	T7	1.50	3.10	10.35	86.25
MTX-0256-03P	#2-56	3/16	T7	1.50	3.10	10.35	86.25
MTX-0256-04P	#2-56	1/4	T7	1.50	3.10	10.35	86.25
MTX-0256-05P	#2-56	5/16	T7	1.50	3.10	10.35	86.25
MTX-0256-06P	#2-56	3/8	T7	1.50	3.10	10.35	86.25
MTX-0256-08P	#2-56	1/2	T7	1.50	3.10	10.35	86.25
MTX-0440-03P	#4-40	3/16	T10	1.50	3.10	10.35	86.25
MTX-0440-04P	#4-40	1/4	T10	1.50	3.10	10.35	86.25
MTX-0440-06P	#4-40	3/8	T10	1.50	3.10	10.35	86.25
MTX-0440-08P	#4-40	1/2	T10	1.50	3.10	10.35	86.25



Stainless Steel 303 Flat Head

Dimensions in Inches							
Part No.	Size/Thread	Length	Torx Driver	10	25	100	1000
MTX-0080-02F	#0-80	1/8	T3	\$1.65	\$3.45	\$11.40	\$95.00
MTX-0080-03F	#0-80	3/16	T3	1.65	3.45	11.40	95.00
MTX-0080-04F	#0-80	1/4	T5	1.65	3.45	11.40	95.00
MTX-0256-02F	#2-56	1/8	T6	1.50	3.10	10.35	86.25
MTX-0256-03F	#2-56	3/16	T6	1.50	3.10	10.35	86.25
MTX-0256-04F	#2-56	1/4	T6	1.50	3.10	10.35	86.25
MTX-0256-05F	#2-56	5/16	T6	1.50	3.10	10.35	86.25
MTX-0256-06F	#2-56	3/8	T6	1.50	3.10	10.35	86.25
MTX-0256-08F	#2-56	1/2	T6	1.50	3.10	10.35	86.25
MTX-0440-03F	#4-40	3/16	T8	1.50	3.10	10.35	86.25
MTX-0440-04F	#4-40	1/4	T8	1.50	3.10	10.35	86.25
MTX-0440-06F	#4-40	3/8	T8	1.50	3.10	10.35	86.25
MTX-0440-08F	#4-40	1/2	T8	1.50	3.10	10.35	86.25

Stainless Steel 18-8 Slotted Fillister Head (A2)

Part No.	UNM Designation	Major Diameter	Length Inches	Each	5	10
MMX-05/060	0.5	0.5mm	0.06	\$6.85	\$28.50	\$47.50
MMX-05/120	0.5	0.5mm	0.12	6.85	28.50	47.50
MMX-06/100	0.6	0.6mm	0.1	5.75	24.00	40.00
MMX-08/080	0.8	0.8mm	0.08	1.65	6.75	11.25
MMX-08/100	0.8	0.8mm	0.1	1.65	6.75	11.25
MMX-08/120	0.8	0.8mm	0.12	1.65	6.75	11.25
MMX-09/120	0.9	0.9mm	0.12	1.65	6.75	11.25



Stainless Steel 18-8 Hex Socket Head Cap Screws

Stainless steel cap screws resist normal rusting and corrosion and can be easily torqued with a hex wrench.

Stainless Steel 18-8 Hex Socket Head Cap Screw

Dimensions in Inches									
Part No.	Size/Thread	Length	Head (Max.)		Hex Wrench				
			Dia.	Height	Size	10	25	100	1000
SHCX-0080-02	#0-80	1/8	0.096	0.06	0.05	-	\$1.85	\$6.20	\$52.70
SHCX-0080-03	#0-80	3/16	0.096	0.06	0.05	1.00	2.05	6.75	57.40
SHCX-0080-04	#0-80	1/4	0.096	0.06	0.05	1.05	2.20	7.25	61.65
SHCX-0080-06	#0-80	3/8	0.096	0.06	0.05	1.15	2.35	7.75	65.90
SHCX-0080-08	#0-80	1/2	0.096	0.06	0.05	1.85	3.85	12.75	108.40
SHCX-0172-02	#1-72	1/8	0.118	0.073	1/16	1.50	3.10	10.25	87.15
SHCX-0172-03	#1-72	3/16	0.118	0.073	1/16	1.55	3.20	10.65	90.55
SHCX-0172-04	#1-72	1/4	0.118	0.073	1/16	1.60	3.30	10.95	93.10
SHCX-0172-06	#1-72	3/8	0.118	0.073	1/16	1.65	3.40	11.25	95.65
SHCX-0172-08	#1-72	1/2	0.118	0.073	1/16	2.00	4.10	13.65	116.05
SHCX-0256-02	#2-56	1/8	0.14	0.086	5/64	-	1.75	5.75	48.90
SHCX-0256-03	#2-56	3/16	0.14	0.086	5/64	-	1.80	5.95	50.60
SHCX-0256-04	#2-56	1/4	0.14	0.086	5/64	-	1.90	6.25	53.15
SHCX-0256-06	#2-56	3/8	0.14	0.086	5/64	1.00	1.95	6.50	55.25
SHCX-0256-08	#2-56	1/2	0.14	0.086	5/64	1.10	2.10	6.95	59.10
SHCX-0256-12	#2-56	3/4	0.14	0.086	5/64	1.10	2.25	7.50	63.75
SHCX-0440-02	#4-40	1/8	0.183	0.112	3/32	1.15	2.35	7.70	65.45
SHCX-0440-03	#4-40	3/16	0.183	0.112	3/32	-	1.80	5.95	50.60
SHCX-0440-04	#4-40	1/4	0.183	0.112	3/32	-	1.35	4.45	37.95
SHCX-0440-06	#4-40	3/8	0.183	0.112	3/32	-	1.40	4.65	39.55
SHCX-0440-08	#4-40	1/2	0.183	0.112	3/32	-	1.50	4.95	42.10
SHCX-0440-12	#4-40	3/4	0.183	0.112	3/32	-	1.90	6.25	53.15
SHCX-0440-16	#4-40	1	0.183	0.112	3/32	1.20	2.50	8.25	70.15
SHCX-0632-02	#6-32	1/8	0.226	0.138	7/64	2.55	5.30	17.60	149.60
SHCX-0632-03	#6-32	3/16	0.226	0.138	7/64	1.45	3.05	10.05	85.45
SHCX-0632-04	#6-32	1/4	0.226	0.138	7/64	-	1.60	5.25	44.65
SHCX-0632-06	#6-32	3/8	0.226	0.138	7/64	-	1.75	5.75	48.90
SHCX-0632-08	#6-32	1/2	0.226	0.138	7/64	-	1.85	6.05	51.45
SHCX-0632-12	#6-32	3/4	0.226	0.138	7/64	1.05	2.20	7.25	61.65
SHCX-0632-16	#6-32	1	0.226	0.138	7/64	1.20	2.50	8.25	70.15
SHCX-0832-03	#8-32	3/16	0.27	0.164	9/64	2.00	4.15	13.75	116.90
SHCX-0832-04	#8-32	1/4	0.27	0.164	9/64	1.00	2.15	7.15	60.75
SHCX-0832-06	#8-32	3/8	0.27	0.164	9/64	1.00	2.10	6.95	59.10
SHCX-0832-08	#8-32	1/2	0.27	0.164	9/64	1.10	2.30	7.65	65.05
SHCX-0832-12	#8-32	3/4	0.27	0.164	9/64	1.15	2.40	7.85	66.75
SHCX-0832-16	#8-32	1	0.27	0.164	9/64	1.50	3.10	10.25	87.15
SHCX-0832-24*	#8-32	1-1/2	0.27	0.164	9/64	2.30	4.75	15.75	133.90
SHCX-1024-04	#10-24	1/4	0.312	0.19	5/32	1.75	3.60	11.95	101.60
SHCX-1024-06	#10-24	3/8	0.312	0.19	5/32	1.20	2.50	8.25	70.15
SHCX-1024-08	#10-24	1/2	0.312	0.19	5/32	1.30	2.70	8.95	76.10
SHCX-1024-12	#10-24	3/4	0.312	0.19	5/32	1.50	3.05	10.15	86.30
SHCX-1024-16	#10-24	1	0.312	0.19	5/32	1.65	3.45	11.50	97.75
SHCX-1024-20*	#10-24	1-1/4	0.312	0.19	5/32	1.95	4.00	13.25	112.65
SHCX-1024-24*	#10-24	1-1/2	0.312	0.19	5/32	2.25	4.65	15.50	131.75
SHCX-1032-04	#10-32	1/4	0.312	0.19	5/32	1.75	3.60	11.95	101.60
SHCX-1032-06	#10-32	3/8	0.312	0.19	5/32	1.20	2.50	8.25	70.15
SHCX-1032-08	#10-32	1/2	0.312	0.19	5/32	1.30	2.70	8.95	76.10

Continued next page

Stainless Steel 18-8 Hex Socket Head Cap Screw

Dimensions in Inches

Part No.	Size/ Thread	Length	Max. Head Dia	Height	Hex Wrench Size	10	25	100	1000
SHCX-1032-12	#10-32	3/4	0.312	0.19	5/32	\$1.50	\$3.05	\$10.15	\$86.30
SHCX-1032-16	#10-32	1	0.312	0.19	5/32	1.70	3.55	11.75	99.90
SHCX-1032-24*	#10-32	1-1/2	0.312	0.19	5/32	2.25	15.50	15.50	131.75
SHCX-1420-04	1/4-20	1/4	0.375	0.25	3/16	3.20	6.60	21.95	186.60
SHCX-1420-06	1/4-20	3/8	0.375	0.25	3/16	2.65	5.50	18.25	155.15
SHCX-1420-08	1/4-20	1/2	0.375	0.25	3/16	1.80	3.75	12.35	104.95
SHCX-1420-12	1/4-20	3/4	0.375	0.25	3/16	2.10	4.35	14.35	121.95
SHCX-1420-16	1/4-20	1	0.375	0.25	3/16	2.30	4.75	15.75	133.90
SHCX-1420-24*	1/4-20	1-1/2	0.375	0.25	3/16	2.95	6.10	20.25	172.15
SHCX-1420-32*	1/4-20	2	0.375	0.25	3/16	4.05	8.45	28.15	239.30
SHCX-1428-08	1/4-28	1/2	0.375	0.25	3/16	2.70	5.55	18.50	157.25
SHCX-1428-12	1/4-28	3/4	0.375	0.25	3/16	3.05	6.30	21.00	178.50
SHCX-1428-16	1/4-28	1	0.375	0.25	3/16	3.20	6.60	22.00	187.00
SHCX-1428-24	1/4-28	1-1/2	0.375	0.25	3/16	4.00	8.35	27.75	235.90
SHCX-1428-32*	1/4-28	2	0.375	0.25	3/16	5.95	12.40	41.25	350.65
SHCX-3816-08	3/8-16	1/2	0.562	0.375	5/16	7.20	15.00	49.95	424.60
SHCX-3816-16	3/8-16	1	0.562	0.375	5/16	5.95	12.40	41.25	350.65
SHCX-3816-24	3/8-16	1-1/2	0.562	0.375	5/16	6.20	12.90	43.00	365.50
SHCX-3816-32*	3/8-16	2	0.562	0.375	5/16	7.95	16.50	55.00	467.50

*not fully threaded

Assortment

SHCX-9000	Ten each size SHCX-0080-02 through SHCX-0440-16 - 230 pieces	\$28.25
SHCX-9100	Ten each size SHCX-0632-02 through SHCX-3816-32 - 440 pieces	96.95
SHCX-9200	Ten each size SHCX-0080-02 through SHCX-3816-32 - 670 pieces	119.20

Metric Stainless Steel 18-8 Socket Head Cap Screw DIN-912

Dimensions in Millimeters

Part No.	Size	Pitch	Length	Max. Head Dia.	Height	Hex Wrench Size	10	25	100
SHCX-M02-06	M2	0.4	6	3.8	2	1.5	—	\$1.80	\$6.00
SHCX-M02-12	M2	0.4	12	3.8	2	1.5	1.50	3.15	10.45
SHCX-M025-06	M2.5	0.45	6	4.5	2.5	2	1.10	2.30	7.55
SHCX-M025-12	M2.5	0.45	12	4.5	2.5	2	4.60	12.00	38.00
SHCX-M03-05	M3	0.5	5	5.5	3	2.5	2.05	4.30	14.35
SHCX-M03-10	M3	0.5	10	5.5	3	2.5	1.55	3.25	10.75
SHCX-M03-12	M3	0.5	12	5.5	3	2.5	1.45	2.95	9.75
SHCX-M03-20	M3	0.5	20	5.5	3	2.5	1.85	3.85	12.75
SHCX-M04-06	M4	0.7	6	7	4	3	—	1.80	5.95
SHCX-M04-08	M4	0.7	8	7	4	3	—	1.90	6.25
SHCX-M04-12	M4	0.7	12	7	4	3	1.00	2.10	6.95
SHCX-M04-16	M4	0.7	16	7	4	3	1.15	2.35	7.75
SHCX-M04-20	M4	0.7	20	7	4	3	1.55	3.25	10.75
SHCX-M04-25	M4	0.7	25	7	4	3	2.65	5.55	18.50
SHCX-M05-08	M5	0.8	8	8.5	5	4	1.80	3.70	12.25
SHCX-M05-12	M5	0.8	12	8.5	5	4	1.20	2.50	8.25
SHCX-M05-16	M5	0.8	16	8.5	5	4	1.30	2.65	8.75
SHCX-M05-20	M5	0.8	20	8.5	5	4	1.35	2.80	9.25
SHCX-M05-25	M5	0.8	25	8.5	5	4	1.50	3.10	10.25
SHCX-M05-35	M5	0.8	35	8.5	5	4	2.45	5.10	17.00
SHCX-M06-12	M6	1	12	10	6	5	1.95	4.00	13.25
SHCX-M06-20	M6	1	20	10	6	5	1.90	3.90	13.00
SHCX-M06-25	M6	1	25	10	6	5	2.05	4.25	14.05
SHCX-M06-35*	M6	1	35	10	6	5	2.90	6.00	19.95
SHCX-M06-40*	M6	1	40	10	6	5	3.05	6.30	21.00
SHCX-M06-50*	M6	1	50	10	6	5	3.20	6.60	22.00
SHCX-M08-10	M8	1.25	10	13	8	6	3.45	7.20	24.00
SHCX-M08-16	M8	1.25	16	13	8	6	3.30	6.90	23.00
SHCX-M08-25	M8	1.25	25	13	8	6	3.85	7.95	26.50
SHCX-M08-30	M8	1.25	30	13	8	6	4.80	10.00	33.25
SHCX-M08-40*	M8	1.25	40	13	8	6	5.85	12.15	40.50
SHCX-M08-50*	M8	1.25	50	13	8	6	6.50	13.50	45.00

*Screw not fully threaded to head.

Assortments

Each assortment contains 10 Cap Screws of each size and length indicated.

Part No.	Size	Lengths in Millimeters	Each
SHCX-M9000	M2	6,10,12	\$22.25
	M2.5	6,10,12,	
	M3	5,10,12,20	
	M4	8,6,10,12,16,20,25	
SHCX-M9100	M4	8,12,16,20,25,40	23.80
	M5	12,20,25,35,40	
SHCX-M9200	Contains all six nominal sizes in quantities indicated above.		39.90



Titanium Hex Head Machine Screws/Bolts

Non-magnetic and lightweight, titanium exhibits high strength to weight ratios, excellent temperature stability, and good corrosion resistance. Compared to stainless or alloy steels, commercially pure titanium weighs approximately 44% less and is equal, or greater, in yield and tensile strength. Titanium will withstand temperatures up to 800°F (up to 2000°F for short periods) and is resistant to the corrosive effects of salt water, many acids, alkalies, and other chemicals.

Titanium Hex Head Machine Screws/Bolts

Part No.	Size/Thread	Length	Each	10
HBTT-0632-16	#6-32	1	\$2.70	\$22.50
HBTT-0832-24	#8-32	1-1/2	15.15	126.00
HBTT-1032-08	#10-32	1/2	2.95	24.40
HBTT-1032-16	#10-32	1	3.60	30.00
HBTT-1032-32	#10-32	2	8.60	71.65
HBTT-1420-08	1/4-20	1/2	2.40	19.80
HBTT-1420-12	1/4-20	3/4	2.80	23.45
HBTT-1420-16	1/4-20	1	3.05	25.40
HBTT-1420-20	1/4-20	1-1/4	3.20	26.65
HBTT-1420-24	1/4-20	1-1/2	3.55	29.70
HBTT-1420-28	1/4-20	1-3/4	3.95	32.65
HBTT-1420-32	1/4-20	2	4.10	34.00
HBTT-5618-16	5/16-18	1	5.50	45.90
HBTT-5618-32	5/16-18	2	8.05	66.80
HBTT-3816-32	3/8-16	2	11.30	94.05
HBTT-3816-48	3/8-16	3	17.35	144.40



Long Arm Series Hex Key Sets Bondhus Briteguard® Finish

An exclusive plating process imparts a chrome-like finish that provides a contamination-free barrier as well as corrosion resistance. The finish cleans and polishes easily. Made from alloyed steel. Ball end sets allow angled access to bolt/screw heads up to a 25° angle. Available in Metric and Inch Sets.

Ball End Sets:

12-Piece set - Inch

Sizes include: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16". Yellow plastic holder.

BT-BE212\$16.25

9-Piece set - Metric

Sizes include: 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm. Red plastic holder.

BT-BE212\$19.95

Hex End Sets

12-Piece set - Inch

Sizes include: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16". Yellow plastic holder.

BT-HE211\$10.95

9-Piece set - Metric

Sizes include: 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm. Red plastic holder.

BT-HE211M\$12.95



Stainless Steel 18-8 Flat Head Hex Socket Cap Screws

Flat Head Hex Socket Cap Screws have an 82° head for flush mounting in a counter-sunk hole. They can be torqued with a hex wrench and are made of corrosion resistant stainless steel 18-8.

Stainless Steel 18-8 Flat Head Hex Socket 82° Cap Screws

Dimensions in Inches									
Part No.	Size/ Thread	Length	Head (Max.) Dia.	Height	Hex Wrench Size	10	25	100	1000
SHCX-0080-02F	#0-80	1/8	0.138	0.044	0.035	\$5.05	\$10.50	\$35.00	\$297.50
SHCX-0080-03F	#0-80	3/16	0.138	0.044	0.035	4.85	10.15	33.75	286.90
SHCX-0080-04F	#0-80	1/4	0.138	0.044	0.035	5.35	11.10	36.95	314.10
SHCX-0080-06F	#0-80	3/8	0.138	0.044	0.035	6.50	13.50	44.95	382.10
SHCX-0172-04F	#1-72	1/4	0.168	0.054	0.05	6.90	14.40	47.95	407.60
SHCX-0172-08F	#1-72	1/2	0.168	0.054	0.05	7.55	15.75	52.50	446.30
SHCX-0256-02F	#2-56	1/8	0.197	0.064	0.05	4.30	8.95	29.75	252.50
SHCX-0256-03F	#2-56	3/16	0.197	0.064	0.05	1.20	2.50	8.30	70.55
SHCX-0256-04F	#2-56	1/4	0.197	0.064	0.05	1.25	2.55	8.50	72.25
SHCX-0256-06F	#2-56	3/8	0.197	0.064	0.05	1.30	2.75	9.05	76.95
SHCX-0256-08F	#2-56	1/2	0.197	0.064	0.05	1.75	3.70	12.25	104.15
SHCX-0256-12F	#2-56	3/4	0.197	0.064	0.05	1.90	3.90	13.00	55.70
SHCX-0440-03F	#4-40	3/16	0.255	0.083	1/16	-	1.45	4.75	40.40
SHCX-0440-04F	#4-40	1/4	0.255	0.083	1/16	-	1.50	4.85	41.30
SHCX-0440-06F	#4-40	3/8	0.255	0.083	1/16	-	1.55	5.05	43.00
SHCX-0440-08F	#4-40	1/2	0.255	0.083	1/16	-	1.65	5.15	43.80
SHCX-0440-12F	#4-40	3/4	0.255	0.083	1/16	1.00	2.00	6.55	55.70
SHCX-0440-16F	#4-40	1	0.255	0.083	1/16	1.05	2.20	7.25	61.70
SHCX-0632-03F	#6-32	3/16	0.307	0.097	5/64	-	2.05	6.75	57.40
SHCX-0632-04F	#6-32	1/4	0.307	0.097	5/64	-	1.70	5.25	44.70
SHCX-0632-06F	#6-32	3/8	0.307	0.097	5/64	-	1.75	5.75	48.90
SHCX-0632-08F	#6-32	1/2	0.307	0.097	5/64	-	1.80	6.00	51.00
SHCX-0632-12F	#6-32	3/4	0.307	0.097	5/64	1.05	2.20	7.25	61.70
SHCX-0832-04F	#8-32	1/4	0.359	0.212	3/32	-	1.95	6.50	55.30
SHCX-0832-06F	#8-32	3/8	0.359	0.212	3/32	-	2.05	6.75	57.40
SHCX-0832-08F	#8-32	1/2	0.359	0.212	3/32	1.05	2.15	7.05	60.00
SHCX-0832-12F	#8-32	3/4	0.359	0.212	3/32	1.25	2.65	8.75	74.40
SHCX-0832-16F	#8-32	1	0.359	0.212	3/32	1.40	2.85	9.50	80.80
SHCX-1024-04F	#10-24	1/4	0.411	0.127	1/8	1.45	2.95	9.75	82.90
SHCX-1024-06F	#10-24	3/8	0.411	0.127	1/8	1.20	2.50	8.25	70.50
SHCX-1024-08F	#10-24	1/2	0.411	0.127	1/8	1.25	2.55	8.50	72.30
SHCX-1024-12F	#10-24	3/4	0.411	0.127	1/8	1.55	3.25	10.75	91.40
SHCX-1024-16F	#10-24	1	0.411	0.127	1/8	1.80	3.70	12.25	104.20
SHCX-1024-20F	#10-24	1-1/4	0.411	0.127	1/8	2.00	4.15	13.75	116.90
SHCX-1024-24F	#10-24	1-1/2	0.411	0.127	1/8	2.60	5.40	18.00	153.00
SHCX-1032-04F	#10-32	1/4	0.411	0.127	1/8	1.30	2.70	8.95	76.10
SHCX-1032-06F	#10-32	3/8	0.411	0.127	1/8	1.25	2.55	8.50	72.30
SHCX-1032-08F	#10-32	1/2	0.411	0.127	1/8	1.30	2.65	8.75	74.40
SHCX-1032-12F	#10-32	3/4	0.411	0.127	1/8	1.60	3.30	10.95	93.10
SHCX-1032-16F	#10-32	1	0.411	0.127	1/8	2.10	4.35	14.50	123.30
SHCX-1032-24F	#10-32	1-1/2	0.411	0.127	1/8	2.60	5.35	17.75	150.90
SHCX-1420-08F	1/4-20	1/2	0.531	0.161	5/32	2.00	4.20	13.95	118.60
SHCX-1420-12F	1/4-20	3/4	0.531	0.161	5/32	2.40	4.95	16.50	140.30
SHCX-1420-16F	1/4-20	1	0.531	0.161	5/32	2.90	6.00	19.95	169.60
SHCX-1420-24F	1/4-20	1-1/2	0.531	0.161	5/32	3.25	6.75	22.50	191.30
SHCX-1420-32F	1/4-20	2	0.531	0.161	5/32	4.55	9.45	31.50	267.80
SHCX-1428-06F	1/4-28	3/8	0.531	0.161	5/32	3.25	6.75	22.50	191.30
SHCX-1428-08F	1/4-28	1/2	0.531	0.161	5/32	3.20	6.60	22.00	187.00
SHCX-1428-12F	1/4-28	3/4	0.531	0.161	5/32	3.50	7.30	24.25	206.20
SHCX-1428-16F	1/4-28	1	0.531	0.161	5/32	3.90	8.10	26.95	229.10
SHCX-1428-20F	1/4-28	1-1/4	0.531	0.161	5/32	4.15	8.65	28.75	229.10
SHCX-1428-24F	1/4-28	1-1/2	0.531	0.161	5/32	4.45	9.25	30.75	150.90
SHCX-1428-32F	1/4-28	2	0.531	0.161	5/32	5.20	10.80	36.00	150.90
SHCX-3816-08F	3/8-16	1/2	0.781	0.234	7/32	6.85	14.25	47.50	403.80
SHCX-3816-16F	3/8-16	1	0.781	0.234	7/32	7.20	15.00	49.95	424.60
SHCX-3816-24F	3/8-16	1-1/2	0.781	0.234	7/32	9.50	19.80	65.95	560.60

Screw Pitch Gauge - Inch

American (SAE) threads. Identifies "pitch" or number of threads per inch on 18 cadmium plated leaves from 8 to 44.

STG-SAE \$7.50



Stainless Steel 18-8 Hex Head Machine Screws/Bolts

Stainless steel machine screws/bolts offer corrosion resistance against atmospheric conditions, chemicals, and weather

extremes, and have a tensile strength of 85 to 125 KSI (1000s pounds per square inch). We stock sizes from 3/16" to 4" lengths and from #0-80 to 1/2-13. All machine bolts less than 1-1/2" in length are fully threaded to the bolt head. The formula to determine the threaded length (TL) is: TL = 2 times the diameter + 1/4".

Stainless Steel 18-8 Hex Head Machine Screws/Bolts

Dimensions in Inches									
Part No.	Size/ Thread	Length	Diameter	Each	10	25	100	1000	
HBX-0080-03	#0-80	3/16	0.0600	-	\$2.45	\$5.10	\$16.95		
HBX-0080-04	#0-80	1/4	0.0600	-	2.50	5.20	17.30		
HBX-0080-06	#0-80	3/8	0.0600	-	2.60	5.40	17.95		
HBX-0080-08	#0-80	1/2	0.0600	-	2.70	5.60	18.65		
HBX-0172-03	#1-72	3/16	0.0730	-	2.65	5.45	18.05		
HBX-0172-04	#1-72	1/4	0.0730	-	2.75	5.70	18.85		
HBX-0172-06	#1-72	3/8	0.0730	-	2.90	6.00	19.95		
HBX-0172-08	#1-72	1/2	0.0730	-	3.00	6.25	20.75		
HBX-0256-03	#2-56	3/16	0.0860	-	2.45	5.10	16.95		
HBX-0256-04	#2-56	1/4	0.0860	-	2.20	4.50	15.00		
HBX-0256-06	#2-56	3/8	0.0860	-	2.15	4.45	14.75		
HBX-0256-08	#2-56	1/2	0.0860	-	2.20	4.50	14.95		
HBX-0440-04	#4-40	1/4	0.1120	-	1.10	2.25	7.45		
HBX-0440-08	#4-40	1/2	0.1120	-	1.30	2.70	8.95		
HBX-0440-12	#4-40	3/4	0.1120	-	1.65	3.35	11.05		
HBX-0632-06	#6-32	3/8	0.1380	-	1.30	2.70	8.85		
HBX-0632-08	#6-32	1/2	0.1380	-	1.40	2.85	9.50		
HBX-0632-12	#6-32	3/4	0.1380	-	1.65	3.35	11.05		
HBX-0632-16	#6-32	1	0.1380	-	1.90	3.95	13.05		
HBX-0832-06	#8-32	3/8	0.1640	-	1.45	2.95	9.75		
HBX-0832-08	#8-32	1/2	0.1640	-	1.50	3.05	10.15		
HBX-0832-12	#8-32	3/4	0.1640	-	1.80	3.75	12.50		
HBX-0832-16	#8-32	1	0.1640	-	2.05	4.25	14.10		
HBX-1032-08	#10-32	1/2	0.1900	-	1.75	3.65	12.05		
HBX-1032-12	#10-32	3/4	0.1900	-	2.10	4.35	14.50		
HBX-1032-16	#10-32	1	0.1900	-	2.40	4.95	16.35		
HBX-1032-24	#10-32	1-1/2	0.1900	-	3.50	7.20	23.95		
HBX-1420-08	1/4-20	1/2	0.2500	-	1.15	2.40	8.00		
HBX-1420-12	1/4-20	3/4	0.2500	-	1.25	2.60	8.55		
HBX-1420-16	1/4-20	1	0.2500	-	1.35	2.80	9.25		
HBX-1420-24*	1/4-20	1-1/2	0.2500	-	1.95	4.00	13.25		
HBX-1420-32*	1/4-20	2	0.2500	-	2.60	5.35	17.75		
HBX-5618-12	5/16-18	3/4	0.3125	-	3.60	7.50	25.00		
HBX-5618-16	5/16-18	1	0.3125	-	2.05	4.25	14.05		
HBX-5618-24*	5/16-18	1-1/2	0.3125	-	2.25	4.60	15.20		
HBX-5618-32*	5/16-18	2	0.3125	-	3.20	6.60	21.90		
HBX-5618-48*	5/16-18	3	0.3125	-	4.10	5.55	28.80		
HBX-3816-12	3/8-16	3/4	0.3750	-	5.15	10.70	35.65		
HBX-3816-16	3/8-16	1	0.3750	-	2.90	6.00	19.95		
HBX-3816-24*	3/8-16	1-1/2	0.3750	-	3.55	7.40	24.65		
HBX-3816-32*	3/8-16	2	0.3750	-	4.05	8.35	27.80		
HBX-3816-48*	3/8-16	3	0.3750	1.00	5.50	11.45	38.05		
HBX-3816-64*	3/8-16	4	0.3750	1.35	7.70	16.05	53.45		
HBX-1213-16	1/2-13	1	0.5000	-	11.35	23.60	78.60		
HBX-1213-32*	1/2-13	2	0.5000	-	6.10	12.65	42.10		
HBX-1213-40*	1/2-13	2-1/2	0.5000	1.25	10.10	21.05	70.10		
HBX-1213-48*	1/2-13	3	0.5000	1.45	11.90	24.80	82.65		
HBX-1213-64*	1/2-13	4	0.5000	1.85	15.30	31.80	105.95		
HBX-1213-80*	1/2-13	5	0.5000	2.45	20.25	42.15	140.35		
HBX-1213-80*	1/2-13	5	0.5000	3.10	25.55	53.25	177.42		

*Bolt not fully threaded to head

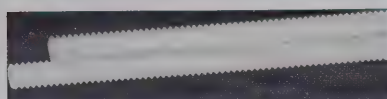
Pocket Size Screw Checkers

Anyone who spends time identifying and sorting screws and other threaded components appreciates the ease and utility of this pocket-size handy tool. Both the inch and metric versions are clearly marked with screw size, tap series, clearance tap and drill sizes, as well as the basic diameter and a length scale for quick sizing. Satin-chrome plated heavy duty steel for precision accuracy.

SCH-M1Inches\$15.50
Sizes: #1 through 5/16" - Measures: 3" x 5"

SCH-SAEMetric\$16.25
Sizes: 2mm through 7mm - Measures: 3" x 5-1/8"

Nylon 6/6 Threaded Rod



Nylon threaded rod is useful as insulating spacers and studs. It is tough and abrasion resistant, unaffected by common solvents and most

organic acids, and is light weight. It is particularly useful with ball joints for making up control shafts linkages for both power transmission of reciprocating motion and positioning instrument controls.

Nylon 6/6 Threaded Rod

Part No.	Size/Thread	12"	24"	36"	72"
TRN-440	#4-40	\$2.90	\$5.25	\$7.15	\$13.00
TRN-632	#6-32	2.25	4.00	5.50	9.95
TRN-832	#8-32	2.25	4.00	5.50	9.95
TRN-032	#10-32	2.15	3.95	5.35	9.75
TRN-1420	1/4-20	1.80	3.25	4.50	8.10
TRN-5618	5/16-18	2.75	5.05	6.90	12.50
TRN-3816	3/8-16	3.45	6.25	8.50	15.45
TRN-1213	1/2-13	5.60	10.25	14.05	25.50

* Material over 60" is shipped FOB Miami Lakes, FL

PEEK Threaded Rod



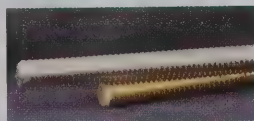
PEEK (Polyetheretherketone) is a highly crystalline thermoplastic that maintains its properties under an extreme range of conditions. Used extensively in medical, chemical processing and electronics industries, it is

particularly valued for its ability to withstand high temperature levels, even under sustained pressure. This material also has excellent chemical resistance (organic, inorganic solvents, aqueous reagents) and high mechanical strength, including good flexural, tensile, impact and fatigue properties. It offers good wear resistance, low moisture absorption, and excellent hydrolysis resistance. Repeated sterilization by all known methods has no effect on PEEK devices. Continuous use temperature rating: 482°F (250°C).

PEEK Threaded Rod

Part No.	Size/Thread	3"	6"	12"
TRPK-256	#2-56	\$12.00	\$20.00	\$33.30
TRPK-440	#4-40	10.75	17.95	29.90
TRPK-632	#6-32	9.95	16.65	27.70
TRPK-832	#8-32	8.95	14.90	24.80
TRPK-032	#10-32	8.95	14.90	24.90

Brass C360 Threaded Rod



Brass C360, unplated is an accepted standard for screw machine work. "Leaded" Brass C360 has a strong zinc content (up to 37%), and a small inclusion of lead that imparts a "free-cutting" quality to this alloy - 60-63% copper, 2.5-3.7% lead, balance

in zinc. Rustproof and corrosion resistant, brass finishes well and is easily plated, soldered and brazed. Nickel plated finish improves appearance, hardness, and long-term wear, preventing pitting and other corrosion.

Brass C-360 Unplated Threaded Rod

Part No.	Size/Thread	12"	24"	36"
TRBB-632	#6-32	\$2.60	\$4.70	\$6.40
TRBB-832	#8-32	2.55	4.70	6.40
TRBB-032	#10-32	3.95	7.15	9.75
TRBB-1420	1/4-20	3.95	7.15	9.75
TRBB-1428	1/4-28	4.55	8.25	11.25
TRBB-5618	5/16-18	8.75	14.55	18.20
TRBB-3816	3/8-16	11.60	19.35	24.15

Brass C-360 Nickel Plated Threaded Rod

Part No.	Size/Thread	12"	24"	36"
TRB-632	#6-32	\$5.75	\$10.45	\$14.25
TRB-832	#8-32	5.75	10.45	14.25
TRB-032	#10-32	5.90	10.75	14.65
TRB-1420	1/4-20	6.95	12.65	17.25
TRB-1428	1/4-28	7.55	13.75	18.75

Stainless Steel Threaded Rod/ Allthread



Machine cut stainless steel Type 303 is highly resistant to most acids and corrosive substances. We offer right-hand machine cut threaded rod as well as Left-hand threaded rod for projects requiring counterclockwise motion.

Stainless Steel Type 303 Machine Cut Right Hand

Part No.	Size/Thread	6"	12"	24"	36"
TRX-0090	#00-90	\$10.85	—	—	—
TRX-080	#0-80	4.85	8.10	13.45	—
TRX-172	#1-72	4.75	7.90	13.15	—
TRX-256	#2-56	4.65	7.75	12.85	—
TRX-440	#4-40	—	5.90	9.80	14.25
TRX-540	#5-40	—	5.90	9.80	14.25
TRX-632	#6-32	—	5.50	9.20	12.40
TRX-832	#8-32	—	4.80	7.95	11.95
TRX-032	#10-32	—	5.50	9.20	13.00
TRX-1420	1/4-20	—	7.35	12.25	16.50
TRX-1428	1/4-28	—	8.25	13.75	18.35
TRX-5618	5/16-18	—	9.20	15.30	21.40
TRX-3816	3/8-16	—	11.80	19.60	28.55
TRX-1213	1/2-13	—	20.20	33.65	46.90

Stainless Steel Type 303 Machine Cut Left Hand

Part No.	Size/Thread	12"	24"	36"
TRLX-080	#0-80	\$9.50	\$15.00	—
TRLX-172	#1-72	9.25	14.80	—
TRLX-256	#2-56	9.25	14.80	—
TRLX-440	#4-40	6.85	10.95	16.25
TRLX-632	#6-32	5.80	9.30	14.40
TRLX-832	#8-32	5.90	9.45	14.40
TRLX-1032	#10-32	6.00	9.60	14.50
TRLX-1420	1/4-20	8.50	13.60	20.40
TRLX-5618	5/16-18	9.75	15.50	23.35

Stainless Steel 18-8 Threaded Rod

Is produced with hardened steel dies whose threaded faces press against the periphery of a plain cylindrical stainless steel blank to reform its surface into the threads desired. Rolled threads have increased strength, uniform accuracy and a high degree of surface finish.

Stainless Steel 18-8 Threaded Rod

Part No.	Size/Thread	12"	24"	36"	72"*
TRCX-256	#2-56	\$1.35	\$2.25	\$3.15	—
TRCX-440	#4-40	1.70	2.80	3.50	5.80
TRCX-632	#6-32	1.75	2.90	3.60	6.00
TRCX-832	#8-32	2.00	3.30	4.10	6.80
TRCX-032	#10-32	2.60	4.35	5.40	9.00
TRCX-1420	1/4-20	2.30	3.85	4.80	8.00
TRCX-1428	1/4-28	3.45	5.75	7.20	12.00
TRCX-5618	5/16-18	3.75	6.25	7.80	13.00
TRCX-3816	3/8-16	4.35	7.20	9.00	15.00
TRCX-1213	1/2-13	7.50	12.50	15.6	26.00

* Material over 60" is shipped FOB Miami Lakes, FL

Metric Stainless Steel 18-8 DIN-975

Dimensions in Millimeters		25 cm (approx. 9-1/2")	50 cm (approx. 19-1/2")
Part No.	Size x Pitch		
TRCX-M02	M2 x 0.4	\$6.15	\$10.25
TRCX-M025	M2.5 x 0.45	5.25	8.75
TRCX-M03	M3 x 0.5	5.40	9.00
TRCX-M04	M4 x 0.7	5.60	9.30
TRCX-M05	M5 x 0.8	5.25	9.55
TRCX-M06	M6 x 1.0	5.30	9.75

Available in one meter lengths on special order.

Titanium Grade 2 Threaded Rod



Non-magnetic. Titanium offers high strength to weight ratios, high temperature stability and good corrosion resistance to salt water and chemical environments. Grade 2 is "commercially pure" 99.3%. Titanium, alloyed with minimal contents (0.20% or less of each) of Iron, oxygen, nitrogen, hydrogen, and less than 0.4% residual elements.

Titanium Grade 2 ASTM-B348 Threaded Rod

Dimensions in Inches				
Part No.	Size/Thread	12"	24"	36"
TRTT-0632	#6-32	\$18.85	\$34.30	\$46.75
TRTT-0832	#8-32	18.85	34.30	46.75
TRTT-1032	#10-32	20.25	36.75	50.00
TRTT-1420	1/4-20	22.25	40.35	55.00
TRTT-5618	5/16-18	24.95	65.10	86.10
TRTT-3816	3/8-16	48.25	89.95	118.95



Go to www.smallparts.com

For Threaded Rod sizes as small as 000-120 in stainless steel and brass.

Stainless Steel 18-8 Full Finish Hex Nuts



Stainless Steel 18-8 Hex Nuts Full Finish

Part No.	Dimensions in Inches		Width Across Flats (F)	Thickness (T)	10			
	Size/Thread	Size/Thread			10	25	100	1000
HNX-000120	#000-120	3/32	3/64	3/64	\$20.25	\$38.95	\$126.00	—
HNX-0090	#00-90	5/64	3/64	3/64	20.25	38.95	126.00	—
HNX-0080	#0-80	5/32	3/64	3/64	1.15	2.40	7.95	67.60
HNX-0172	#1-72	5/32	3/64	3/64	1.25	2.55	8.50	72.30
HNX-0256	#2-56	3/16	1/16	1/16	—	1.00	3.00	25.50
HNX-0440	#4-40	1/4	3/32	3/32	—	1.00	2.50	21.30
HNX-0540	#5-40	5/16	7/64	7/64	—	1.20	3.95	33.60
HNX-0632	#6-32	5/16	7/64	7/64	—	1.00	3.25	27.70
HNX-0832	#8-32	11/32	1/8	1/8	—	1.10	3.55	30.20
HNX-1024	#10-24	3/8	1/8	1/8	—	1.15	3.75	31.90
HNX-1032	#10-32	3/8	1/8	1/8	—	1.15	3.75	31.90
HNX-1420	1/4-20	7/16	3/16	3/16	—	1.80	5.95	50.60
HNX-1428	1/4-28	7/16	7/32	7/32	1.05	2.15	7.10	60.40
HNX-5618	5/16-18	1/2	17/64	17/64	1.45	3.00	9.95	84.60
HNX-3816	3/8-16	9/16	21/64	21/64	2.10	4.35	14.50	123.30
HNX-1213	1/2-13	3/4	7/16	7/16	5.05	10.50	34.85	296.30

Metric Stainless Steel 18-8 Hex Nuts Finish Full DIN-934

Dimensions in Millimeters								
Part No.	Pitch	Size	T	F	10	25	100	1000
HNX-M01	M1	0.3	0.8	2.5	\$27.75	\$57.75	\$192.40	—
HNX-M014	M1.4	0.3	1.2	3.0	27.65	57.55	191.75	—
HNX-M02	M2	0.4	1.6	4.0	1.25	2.55	8.45	71.85
HNX-M025	M2.5	0.5	2.0	5.0	—	1.50	4.75	40.40
HNX-M03	M3	0.5	2.4	5.5	—	1.50	4.75	40.40
HNX-M04	M4	0.7	3.2	7	—	1.50	4.75	40.40
HNX-M05	M5	0.8	4.0	8.0	—	1.55	4.80	40.80
HNX-M06	M6	1.0	5.0	10.0	—	1.75	5.80	49.30
HNX-M08	M8	1.25	6.5	13.0	2.30	4.80	16.00	136.00

Stainless Steel 18-8 Lock Nuts With Nylon 6/6 Insert

Stainless steel nut with nylon locking insert permanently installed. Prevents loosening due to vibration and is self-locking in any position. Can be removed and returned with minimum loss of locking effect.



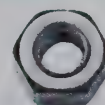
Stainless Steel 18-8 Lock Nuts with Nylon 6/6 Insert

Dimensions in Inches							
Part No.	Size/ Thread	Width Across Flats(F)		Nominal Height (T)			
					10	25	100
HLNX-0256	#2-56	1/4	0.143	\$3.75	\$7.80	\$25.90	
HLNX-0440	#4-40	1/4	0.150	—	1.55	5.15	
HLNX-0632	#6-32	5/16	0.174	—	2.00	6.65	
HLNX-0832	#8-32	11/32	0.224	1.15	2.35	7.70	
HLNX-1024	#10-24	3/8	0.233	1.20	2.50	8.35	
HLNX-1032	#10-32	3/8	0.233	1.20	2.50	8.35	
HLNX-1420	1/4-20	7/16	5/16	1.50	3.10	10.30	
HLNX-5618	5/16-18	1/2	11/32	2.35	4.85	16.05	
HLNX-3816	3/8-16	9/16	29/64	3.15	6.60	21.95	
HLNX-1213	1/2-13	3/4	19/32	6.80	14.15	47.10	

Metric Stainless Steel 18-8 Lock Nuts

Dimensions in Millimeters							
Part No.	Size	Pitch	T	F	10	25	100
HLNX-M03	M3	0.5	4.0	5.5	\$1.95	\$3.95	\$11.80
HLNX-M04	M4	0.7	5.0	7.0	2.00	4.00	11.90
HLNX-M05	M5	0.8	5.0	8.0	2.05	4.10	12.20
HLNX-M06	M6	1.0	6.0	10.0	2.25	4.50	13.50
HLNX-M08	M8	1.25	8.0	13.0	3.50	7.00	21.00

Titanium Full Finish Hex Nuts



Titanium Full Finish Hex Nuts ASTM-B348 Grade 2

Dimensions in Inches				
Part No.	Size/Thread	Each	10	25
HNTT-0632	#6-32	\$4.50	\$37.65	\$78.40
HNTT-0832	#8-32	3.00	24.00	48.00
HNTT-1032	#10-32	3.05	24.40	48.80
HNTT-1420	1/4-20	1.75	14.00	28.00
HNTT-5618	5/16-18	2.40	19.20	38.40
HNTT-3816	3/8-16	3.95	31.60	63.20

Stainless Steel 18-8 Cap Nuts



Stainless Steel 18-8 Cap Nuts

Dimensions in Inches						
Part No.	Size/ Thread	Width Across Flats	Nominal Height	10	25	100
CNX-0440	#4-40	1/4	1/4	\$5.10	\$10.60	\$33.95
CNX-0632	#6-32	5/16	5/16	5.20	10.85	34.65
CNX-0832	#8-32	5/16	5/16	5.25	10.90	34.85
CNX-1032	#10-32	3/8	3/8	5.35	11.10	35.50
CNX-1420	1/4-20	3/8	3/8	5.35	11.15	35.70
CNX-1428	1/4-28	7/16	7/16	8.30	17.25	55.20

Stainless Steel 18-8 Wing Nuts



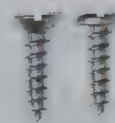
Stainless Steel 18-8 Wing Nuts

Dimensions in Inches					
Part No.	Size/Thread	10	25	100	
WNX-0632	#6-32	\$4.65	\$9.60	\$31.95	
WNX-0832	#8-32	5.25	10.85	36.15	
WNX-1032	#10-32	5.55	11.50	38.25	
WNX-1420	1/4-20	6.10	12.65	42.15	
WNX-3816	3/8-16	9.65	20.05	66.75	

Metric Stainless Steel 18-8 Wing Nuts

Dimensions in Millimeters					
Part No.	Nominal Size	Pitch	Wing Spread Max.	Wing Height Min.	
WNX-M03	M3	0.5	17.6	8.6	\$9.40 \$21.60 \$74.90
WNX-M04*	M4	0.7	20.0	8.6	10.95 25.20 87.75
WNX-M05	M5	0.8	22.5	11.0	11.25 25.85 89.90
WNX-M06	M6	1.0	27.8	13.6	14.20 32.65 113.45

DIN 315*



Stainless Steel Slotted Drive Sheet Metal Screws

Useful for a variety of fastening applications where thin metals or plastics are involved, or in wood where long holding power is needed.

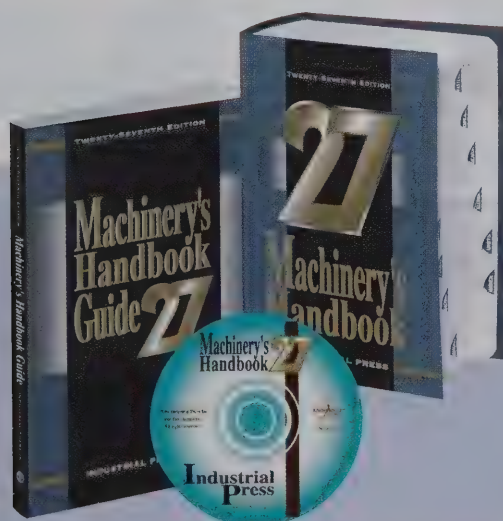
Type BA, gimlet (sharp) point, sheet metal screws are available with slotted drive, flat, pan head styles based on size.

Stainless Steel 18-8 Slotted Drive Sheet Metal Screws

Dimensions in Inches					
Part No.	Nominal Size	Length	Diameter	Head Style	
TX000-1-1/2	#000	3/32	0.03	Flat	\$26.00 \$54.15 \$180.35
TX000-2	#000	1/8	0.034	Flat	26.00 54.15 180.35
TX00-2	#00	1/8	0.047	Flat	13.50 28.10 93.60
TX00-3	#00	3/16	0.047	Flat	13.50 28.10 93.60
TX0-2	#0	1/8	0.060	Flat	12.00 25.00 83.25
TX0-3	#0	3/16	0.060	Flat	12.00 25.00 83.25
TX1-3	#1	3/16	0.073	Flat	12.65 26.35 87.75
TX1-4	#1	1/4	0.073	Flat	12.65 26.35 87.75
TX1-6	#1	3/8	0.073	Flat	12.65 26.35 87.75
TX2-4	#2	1/4	0.089	Pan	1.00 2.00 6.60
TX2-5	#2	5/16	0.089	Pan	1.45 3.05 10.10

Assortment

TX-9000	Ten each size TX00-1 1/2 through TX2-5	\$132.75
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Stainless Steel 18-8 Flat Washers

Burr-free and passivated, these flat washers are made from stainless steel 18-8, which indicates strong resistance to corrosion from chemicals, atmospheric conditions, weather extremes and electrical fields. All dimensions correspond to standards for plain washers under ANSI/ASME B18.22.1 1965 (R1998).

Width series - **Narrow, Regular, or Wide** - is indicated by the last digit of part number: **N, R, or W**.



Stainless Steel 18-8 Flat Washers ANSI / ASME B18.22.1 1965 (R1998)

Dimensions in Inches					
Part No.	Nominal Size	I.D.	O.D.	Thickness (T)	
WX-000*	000	0.040	0.090	0.010	\$6.85 \$14.10 \$47.00
WX-00*	00	0.053	0.108	0.015	4.65 9.70 32.30
WXA-0N	0	0.068	0.125	0.025	1.05 2.15 7.10
WXA-0R	0	0.068	0.188	0.025	1.05 2.10 6.95
WXA-0W	0	0.068	0.250	0.025	1.05 2.20 7.25
WXA-01N	1	0.084	0.156	0.025	1.05 2.15 7.15
WXA-01R	1	0.084	0.219	0.025	1.05 2.10 7.00
WXA-01W	1	0.084	0.281	0.032	1.05 2.15 7.20
WXA-02N	2	0.094	0.188	0.025	1.05 2.15 7.15
WXA-02R	2	0.094	0.250	0.032	1.05 2.10 7.05
WXA-02W	2	0.094	0.344	0.032	1.05 2.20 7.30
WXA-04N	4	0.125	0.250	0.032	1.05 2.10 7.05
WXA-04R	4	0.125	0.375	0.040	1.05 2.10 6.90
WXA-04W	4	0.125	0.438	0.040	1.05 2.15 7.15
WXA-05N	5	0.141	0.281	0.032	1.05 2.20 7.25
WXA-05R	5	0.141	0.406	0.040	1.05 2.15 7.10
WXA-05W	5	0.141	0.500	0.040	1.10 2.25 7.40
WXA-06N	6	0.156	0.312	0.032	1.05 2.10 7.00
WXA-06R	6	0.156	0.438	0.040	1.05 2.05 6.85
WXA-06W	6	0.156	0.562	0.040	1.05 2.20 7.25
WXA-08N	8	0.188	0.375	0.040	1.05 2.10 7.00
WXA-08R	8	0.188	0.500	0.040	1.05 2.05 6.85
WXA-08W	8	0.188	0.625	0.063	1.05 2.20 7.25
WXA-10N	10	0.203	0.406	0.040	1.05 2.20 7.25
WXA-10R	10	0.203	0.562	0.040	1.05 2.15 7.10
WXA-10W	10	0.203	0.734	0.063	1.10 2.30 7.60
WXA-1/4N	1/4	0.281	0.500	0.063	1.35 2.80 9.25
WXA-1/4R	1/4	0.281	0.734	0.063	1.25 2.65 8.65
WXA-1/4W	1/4	0.281	1.000	0.063	1.40 2.90 9.95
WXA-5/16N	5/16	0.344	0.625	0.063	1.65 3.40 11.30
WXA-5/16R	5/16	0.344	0.875	0.063	1.60 3.30 10.90
WXA-5/16W	5/16	0.344	1.125	0.063	1.75 3.55 11.75
WXA-3/8N	3/8	0.406	0.734	0.063	2.50 5.25 17.45
WXA-3/8R	3/8	0.406	1.000	0.063	2.25 4.75 15.75
WXA-3/8W	3/8	0.406	1.250	0.100	2.65 5.45 18.10
WXA-1/2N	1/2	0.531	1.000	0.063	3.20 6.65 22.20
WXA-1/2R	1/2	0.531	1.250	0.100	3.15 6.55 21.85
WXA-1/2W	1/2	0.531	1.750	0.100	5.30 11.05 36.75

*No ANSI/ASME standard exists for this size.

Machinery's Handbook

A vital reference manual for more than 75 years

Standard for engineers, machinery and tool designers, mechanics, machinists, hobbyists and students. From abrasives to zirconium, you will find the information you need within this "Toolbox".

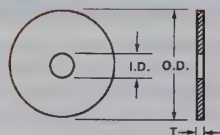
Industrial Press

27 Edition, 2004.

5" x 7", Hard cover

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BCK-10CD CD-ROM.....89.95



Stainless Steel 18-8 Fender Washers

Fender washers get their name from their origin in the automotive industry, but nowadays they are mostly used in sheet metal, electrical, plumbing, drywall and wood paneling applications - anywhere an extra-wide bearing surface is required for installation of fixtures. Fender washers are great for holding sheets of metal parallel, and they are frequently used for attaching signs to posts and walls.

Always a good choice for corrosion resistance, stainless steel 18-8 construction offers high strength and excellent thermal performance.

Stainless Steel 18-8 Fender Washers

Part No.	Nominal Size	Dimensions in Inches			10	25	100
		I.D.	O.D.	Thickness			
WXF-0	0	0.068	0.250	0.025	\$1.45	\$3.00	\$10.00
WXF-01	1	0.084	0.281	0.032	2.95	6.15	20.45
WXF-02	2	0.094	0.344	0.032	1.80	3.75	12.55
WXF-04	4	0.125	0.312	0.016	1.95	4.05	13.45
WXF-05	5	0.143	0.500	0.040	2.55	5.30	17.60
WXF-06	6	0.149	0.625	0.031	2.10	4.35	14.45
WXF-08	8	0.174	0.750	0.040	2.25	4.70	15.55
WXF-10	10	0.203	0.688	0.040	2.40	5.00	16.60
WXF-1/4	1/4	0.281	1.000	0.050	2.50	5.20	17.25
WXF-5/16	5/16	0.343	1.250	0.050	3.05	6.35	21.10
WXF-3/8	3/8	0.406	1.500	0.062	3.35	6.95	23.10
WXF-1/2	1/2	0.531	2.000	0.062	5.05	10.45	34.80



Flat PTFE (Teflon®) Washers

Few materials match the advantageous characteristics of PTFE. Chemically inert, it operates in temperatures as low as -450°F (-268°C). Yet will endure up to 190°F (88°C) under flexural load of 264 PSI. It also has excellent anti-frictional and electrical properties.

PTFE washers have high chemical and corrosion resistance. They are nonmagnetic and are a good choice as spacers or for minimizing wear between rotating parts. Note that Teflon® materials should never be heated to temperatures above 752°F (400°C). All dimensions conform to standards for regular plain washers under ANSI/ASME B18.22.1 1965 (R1998). Color: White.

Flat PTFE (Teflon®) Washers

Part No.	Nominal		Dimensions in Inches			10	25	100
	Size	Diameter	I.D.	O.D.	Thickness			
WTFA-0	0	0.060	0.068	0.188	0.025	\$2.50	\$5.15	\$16.50
WTFA-01	1	0.073	0.084	0.219	0.025	2.75	5.75	18.40
WTFA-02	2	0.086	0.094	0.250	0.032	3.05	6.25	20.00
WTFA-04	4	0.112	0.125	0.375	0.040	3.20	6.55	21.00
WTFA-05	5	0.125	0.141	0.406	0.040	4.15	8.50	27.20
WTFA-06	6	0.138	0.156	0.438	0.040	4.40	9.00	28.80
WTFA-08	8	0.164	0.188	0.500	0.040	4.80	9.85	31.55
WTFA-10	10	0.190	0.203	0.562	0.040	5.40	11.05	35.40
WTFA-1/4	1/4	0.250	0.281	0.734	0.063	5.95	12.20	39.05
WTFA-5/16	5/16	0.312	0.344	0.875	0.063	6.80	13.95	44.65
WTFA-3/8	3/8	0.375	0.406	1.000	0.063	7.00	14.35	45.95
WTFA-1/2	1/2	0.500	0.531	1.250	0.100	7.25	14.85	47.55



Box With Hinged Cover Latch - Polypropylene

Even your heaviest small parts and components will stay put in this versatile, well-designed container. Unbreakable, see-through and outfitted with a molded-in safety hanging tab, these tough plastic storage Boxes have a 1-3/4" wide front closure latch that helps to keep contents secure.

Box with Hinged Cover

Part No.	Compartments	Inside Dimensions	10	25	100
LHB-52	One	3-3/8" x 3-3/16" x 1-3/8"	\$8.20	\$15.00	\$50.00



Flat Fiberglass G-10 Epoxy Resin Washers

Nonconductive and resistant to many corrosives, fiberglass washers are a good choice for applications threatened by salt water, oils, mild solvents, and other harsh environments.

Flame retardant fiberglass has good electrical properties and high mechanical strength, and it maintains its flexural capacities in a wide range of temperatures, resisting continuous no-load heat to 250°F (121°C). The dimensions of our fiberglass washers conform to ANSI/ASME specifications for regular plain washers, B18.22.1 1965 (R1998).

Flat Fiberglass G-10 Epoxy Resin Washer

Part No.	Nominal		Dimensions in Inches			10	25	100
	Size	Diameter	I.D.	O.D.	Thickness			
WFGA-0	0	0.060	0.068	0.188	0.025	\$3.10	\$6.25	\$19.00
WFGA-01	1	0.073	0.084	0.219	0.025	3.10	6.25	19.00
WFGA-02	2	0.086	0.094	0.250	0.032	2.50	5.00	15.00
WFGA-04	4	0.112	0.125	0.375	0.040	2.50	5.00	15.00
WFGA-05	5	0.125	0.141	0.406	0.040	3.00	6.00	19.00
WFGA-06	6	0.138	0.156	0.438	0.040	2.50	5.00	15.00
WFGA-08	8	0.164	0.188	0.500	0.040	2.50	5.00	15.00
WFGA-10	10	0.190	0.203	0.562	0.040	2.50	5.00	15.00
WFGA-1/4	1/4	0.250	0.281	0.735	0.063	2.80	5.50	17.00
WFGA-5/16	5/16	0.312	0.344	0.875	0.063	4.10	8.00	24.00
WFGA-3/8	3/8	0.375	0.406	1.000	0.063	4.30	8.50	26.00
WFGA-1/2	1/2	0.500	0.531	1.250	0.100	4.90	9.75	29.00



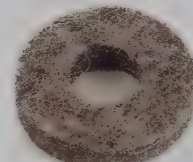
Flat Silicone Bronze Washers

Because it is non-magnetic and has good friction reduction qualities, silicon bronze is a good washer choice when joining dissimilar materials. Stands up well under harsh conditions. Known as a high-strength alloy with good toughness and a high degree of thermal conductivity,

silicon bronze has excellent resistance to corrosion caused by brine, gases, and sulphite solutions. Fasteners made from silicon bronze are frequently used for marine construction and in applications for liquid handling and sewage disposal equipment.

Flat Silicone Bronze Washers

Part No.	Nominal		Dimensions in Inches			10	25	100
	Size	Diameter	I.D.	O.D.	Thickness			
WSB-06	6	0.138	0.147	0.375	0.032	\$1.00	\$1.80	\$6.00
WSB-08	8	0.164	0.172	0.375	0.032	1.05	2.05	6.75
WSB-10	10	0.190	0.200	0.437	0.036	1.10	2.25	7.50
WSB-1/4	1/4	0.250	0.260	0.687	0.04	1.65	3.45	11.40
WSB-5/16	5/16	0.312	0.340	0.875	0.062	3.75	7.80	26.00
WSB-3/8	3/8	0.375	0.392	1.000	0.062	4.75	9.90	33.00
WSB-1/2	1/2	0.500	0.562	1.250	0.091	7.20	15.00	49.90



Flat Felt Washers

The absorption capacity of our all wool felt washers is recommended for applications requiring sound reduction or vibration deadening, and they work well as thermal insulators or as non-marring separation materials. Or soak them with oil for use as lubrication aids. Although not standard thicknesses, the inside and outside diameters of

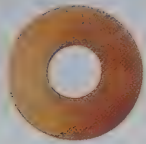
these flat washers meet specifications for regular plain washers, ANSI/ASME B18.22.1 1965 (R1998).

Flat Felt Washers

Part No.	Nominal		Dimensions in Inches					
	Size	Diameter	I.D.	O.D.	Thickness	10	25	100
WFLT-10	10	0.190	0.203	0.562	0.187	\$2.85	\$5.85	\$18.00
WFLT-1/4	1/4	0.250	0.281	0.734	0.187	2.55	5.25	16.20
WFLT-5/16	5/16	0.312	0.344	0.875	0.187	3.25	6.65	20.50
WFLT-3/8	3/8	0.375	0.406	1.000	0.187	4.05	8.30	25.55
WFLT-1/2	1/2	0.500	0.531	1.250	0.250	5.75	11.80	36.35

*ANSI/ASME standards do not apply to Thickness dimension.

Flat Phosphor Bronze Washers



Exceptionally thin, these flat washers are valuable in applications requiring friction reduction. Phosphor bronze resists wear, stress and marine corrosion, and can be polished to a rich, golden shine. Except for thickness, these

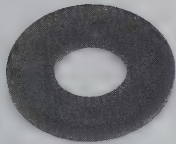
washers meet standards for regular plain washers, ANSI/ASME B18.22.1 1965 (R1998).

Flat Phosphor Bronze Washers

Part No.	Nominal Dimensions in Inches						
	Size	I.D.	O.D.	Thickness*	10	25	100
WPB-0	0	0.068	0.188	0.010	\$1.40	\$2.80	\$8.95
WPB-01	1	0.084	0.219	0.010	1.40	2.80	8.95
WPB-02	2	0.094	0.25	0.010	1.40	2.80	8.95
WPB-04	4	0.125	0.375	0.010	1.45	2.90	9.30
WPB-05	5	0.141	0.406	0.010	1.65	3.30	10.55
WPB-06	6	0.156	0.438	0.010	1.65	3.30	10.55
WPB-08	8	0.188	0.500	0.010	1.65	3.30	10.55
WPB-10	10	0.203	0.562	0.010	1.75	3.50	11.20
WPB-1/4	1/4	0.281	0.734	0.010	2.05	4.10	13.15
WPB-5/16	5/16	0.344	0.875	0.010	2.30	4.60	14.75
WPB-3/8	3/8	0.406	1.000	0.016	2.95	5.90	18.90
WPB-1/2	1/2	0.531	1.250	0.016	3.80	7.60	24.30

*ANSI/ASME standards do apply to Thickness dimension.

Flat Hard Fiber Washers



Useful for insulation or light duty sealing jobs, hard fiber washers resist compression and help maintain appropriate spacing between materials or parts. This commercial grade vulcanized fiber material performs with continuous heat resistance to 212°F (100°C) under no load conditions.

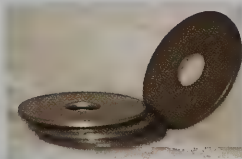
Color: Black. Regular ANSI/ASME B18.22.1 1965 (R1998)

Flat Hard Fiber Washers

Part No.	Nominal Dimensions in Inches						
	Size	I.D.	O.D.	Thickness	100	500	1000
WHFA-0	0	0.068	0.188	0.025	\$2.25	\$9.00	\$14.00
WHFA-01	1	0.084	0.219	0.025	2.70	10.80	16.80
WHFA-02	2	0.094	0.250	0.032	2.70	10.80	16.80
WHFA-04*	4	0.125	0.375	0.045	3.15	12.60	19.60
WHFA-05*	5	0.141	0.406	0.045	3.60	14.40	22.40
WHFA-06*	6	0.156	0.438	0.045	4.05	16.20	25.20
WHFA-08*	8	0.188	0.500	0.045	4.05	16.20	25.20
WHFA-10*	10	0.203	0.562	0.045	4.50	18.00	28.00
WHFA-1/4*	1/4	0.281	0.734	0.063	6.75	27.00	42.00
WHFA-5/16*	5/16	0.344	0.875	0.063	8.10	32.40	50.40
WHFA-3/8*	3/8	0.406	1.000	0.063	11.70	46.80	72.80
WHFA-1/2*	1/2	0.531	1.250	0.093	16.20	64.80	100.80

*Thickness dimension is within standard tolerance.

Flat Titanium Washers



Non-magnetic. Titanium exhibits high strength to weight ratios, excellent temperature stability, and

good corrosion resistance. Titanium washers are a good choice for applications that demand resistance to high temperatures and the corrosive effects of saltwater, many acids, alkalis and other chemicals.

Flat Titanium Washers

Part No.	Nominal Dimensions in Inches						
	Size	I.D.	O.D.	Thickness	Each	10	
WTT-06	6	0.160	0.375	0.050	\$1.10	\$9.00	
WTT-08	8	0.290	0.438	0.040	1.30	10.90	
WTT-10	10	0.220	0.500	0.040	1.00	7.20	
WTT-1/4	1/4	0.260	0.625	0.063	1.05	8.60	
WTT-5/16	5/16	0.335	0.687	0.063	1.25	10.50	
WTT-3/8	3/8	0.390	0.812	0.063	1.65	13.70	

Wave Beryllium Copper Washers C-172



Wave washers can be placed next to a bearing on a shaft to take up end play, or used in static applications for proper resilience and tension at fastening points. The curved waves absorb shock and vibration, and resist loosening and fatigue, with increased load bearing capacity. Wave washers are frequently used in applications with limited radial space. Beryllium copper has superior strength for impact, is a good conductor of both heat and electricity, and is nonmagnetic and corrosion resistant. Number of waves: 3.

Wave Beryllium Copper Washers C-172

Part No.	Dimensions in Inches						
	I.D.	O.D.	Nominal Thickness (T)	Overall Height (H)	10	25	100
WWBC-1/4	0.328	0.682	0.010	0.062	\$5.70	\$11.70	\$36.10
WWBC-5/16	0.390	0.682	0.010	0.065	5.85	11.95	37.00
WWBC-3/8	0.455	0.870	0.010	0.094	5.85	11.95	37.00
WWBC-1/2	0.550	0.740	0.016	0.110	6.00	12.30	38.00

Stainless Steel 302 Belleville Spring Washers



Because they can sustain relatively large loads with small deflections, Belleville spring washers are especially suited for high loads in small places. Numerous load-carrying possibilities can be obtained by stacking the springs

in various sequences. Stainless steel type 302 provides a strong bearing surface with good corrosion resistance.

Stainless Steel Type 302 Belleville Spring Washers

Part No.	Dimensions in Inches				Approx. Height (H)			
	Min. I.D.	Max. O.D.	Thickness (T)	pa*		10	25	100
WSX-187/07	3/32	3/16	0.006	9.9	.013	\$21.20	\$48.15	\$160.50
WSX-187/10	3/32	3/16	0.010	27.8	.015	20.55	46.55	155.15
WSX-250/13	1/8	1/4	0.013	48.0	.020	17.05	38.55	128.40
WSX-250/15	0.138	9/32	0.015	62.0	.023	16.30	36.95	123.05
WSX-250/19	0.164	11/32	0.019	93.0	.028	15.65	35.35	117.70
WSX-375/15	3/16	3/8	0.015	55.0	.027	15.65	35.35	117.70
WSX-500/18	1/4	1/2	0.018	70.0	.034	18.00	39.95	132.25
WSX-625/22	5/16	5/8	0.022	105.0	.015	19.15	43.35	144.45
WSX-750/28	3/8	3/4	0.028	175.0	.051	21.50	48.80	162.65

*pa= Pounds - Calculated load in the flat position.

Stainless Steel Type 301 Curved Spring Washers



These curved washers exert relatively light thrust loads and are often used to absorb axial end play. The rate is linear between 10% and 80% of available deflection.

Stainless Steel 301 Curved Spring Washers

Part No.	Dimensions in Inches				Load at H1 (lbs.) ±15%	t			
	Free Fit Screw or Rod Size	Free Fit in Hole Dia.	Max. O.D. (A)	Min. I.D. (B)			10	25	100
WCX-093	3/32	7/32	0.215	0.100	0.028	0.015	1.5	0.004	\$7.55 \$14.70 \$50.00
WCX-125	#5	1/4	0.245	0.135	0.034	0.020	2.0	0.006	7.55 14.70 50.00
WCX-138	#6	9/32	0.270	0.148	0.035	0.022	2.5	0.007	7.65 14.85 51.00
WCX-164	#8	11/32	0.322	0.174	0.042	0.025	3.0	0.007	8.25 15.95 54.25
WCX-190	#10	3/8	0.370	0.200	0.047	0.028	4.5	0.009	8.25 15.95 54.25
WCX-250	1/4	7/16	0.423	0.269	0.055	0.032	2.5	0.008	8.80 17.10 58.50

Stainless Steel Regular Helical Spring Split Lock Washers

Helical spring split lock washers help achieve tight assemblies by providing good bolt tension per unit of applied torque, with uniform torque control and even load distribution. These washers perform with a type of spring action created by pressure from a slight spiral or "helical" form.

Upward and downward bent projections on respective sides of the split allow the washer to grasp adjoining materials, which help prevent components from loosening under vibration or corrosion.

Tough and reliable for many applications, stainless steel 18-8 holds up in extremes of heat and cold, and it has resistance to many chemicals, atmospheric conditions, electrical fields and other corrosives. All dimensions correspond to standards for regular helical spring lock washers under ANSI/ASME B18.21.1 1994.



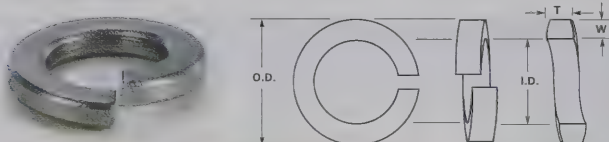
S/S 18-8 Regular Helical Spring Lock Washers - ANSI

Dimensions in Inches								
Part No.	Nominal Size	Major Diameter	I.D. Min.	O.D. Max.	Thickness (T)	10	25	100
LWX-0*	0	0.060	0.062	0.137	0.017	—	\$2.15	\$6.65
LWX-1*	1	0.073	0.075	0.150	0.022	—	2.15	6.54
LWXA-02	2	0.086	0.088	0.172	0.020	—	1.25	4.00
LWXA-04	4	0.112	0.114	0.209	0.025	—	1.25	4.00
LWXA-05	5	0.125	0.127	0.236	0.031	—	1.25	4.00
LWXA-06	6	0.138	0.141	0.250	0.031	—	1.25	4.00
LWXA-08	8	0.164	0.167	0.293	0.040	—	1.25	4.00
LWXA-10	10	0.190	0.193	0.334	0.047	—	1.25	4.00
LWXA-1/4	1/4	0.250	0.254	0.487	0.062	1.10	2.25	4.75
LWXA-5/16	5/16	0.312	0.317	0.583	0.078	1.25	2.25	8.50
LWXA-3/8	3/8	0.375	0.380	0.680	0.094	1.60	3.35	11.10
LWXA-1/2	1/2	0.500	0.506	0.869	0.125	3.05	6.30	21.00

*No ANSI/ASME standard exists for this size.

Titanium Regular Helical Spring Split Lock Washers

Non-magnetic. Titanium exhibits high strength to weight ratios, excellent temperature stability, and good corrosion resistance. Titanium washers are a good choice for applications that demand resistance to high temperatures and the corrosive effects of saltwater, many acids, alkalies and other chemicals.



Titanium Regular Helical Spring Split Lock Washers

Dimensions in Inches							
Part No.	Nominal Size	Min. I.D.	O.D.	Thickness (T)	Each	10	25
LWTT-06	#6	0.141	0.250	0.050	\$3.95	\$35.30	\$73.50
LWTT-08	#8	0.167	0.312	0.050	2.40	21.40	44.50
LWTT-10	#10	0.193	0.312	0.050	1.70	15.15	31.50
LWTT-1/4	1/4	0.252	0.500	0.063	1.60	14.40	30.00
LWTT-5/16	5/16	0.314	0.625	0.078	1.90	16.95	35.25
LWTT-3/8	3/8	0.377	0.687	0.125	2.65	23.40	48.75



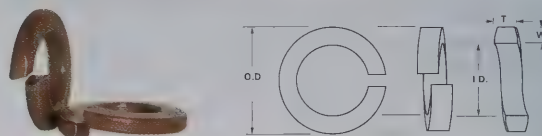
Ceramic Standoff Glazed Steatite

With a temperature tolerance to 2350°F (1288°C), ceramic standoffs made from glazed steatite provide electrical isolation, resistance to thermal extremes, high-wear conditions, and/or corrosion. Glazing provides an

aesthetically pleasing finish, but its primary function is ease of cleaning, which helps prevent surface conduction via contaminants. Magnesia/Silica/Alumina ceramic parts are threaded on both ends, with a countersunk lead. Sharp edges have been removed to avoid chipping. Color: Tan.

Silicon Bronze Regular Helical Spring Split Lock Washers

Silicon bronze is an excellent material for use in marine environments, helping to prevent rot around screw holes when used under water. It is relatively strong and highly resistant to corrosion by brine and sulfite solutions, non-oxidizing inorganic acids, alkalies, and other media. It is also a good friction reduction material. All dimensions correspond to standards for regular helical spring lock washers under ANSI/ASME B18.21.1 1994.

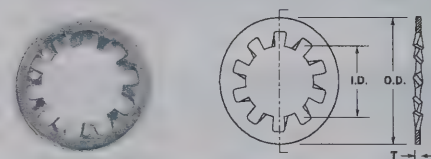


Silicon Bronze Regular Helical Spring Split Lock Washers

Dimensions in Inches								
Part No.	Nominal Size	Major Diameter	Min. I.D.	Max. O.D.	Thickness (T)	10	25	100
LSBA-02	2	0.086	0.088	0.172	0.020	\$1.45	\$3.00	\$10.00
LSBA-04	4	0.112	0.114	0.209	0.025	1.75	3.60	12.00
LSBA-06	6	0.138	0.141	0.250	0.031	1.95	4.05	13.50
LSBA-08	8	0.164	0.167	0.293	0.040	2.15	4.45	14.75
LSBA-10	10	0.190	0.193	0.334	0.047	2.40	4.95	16.45
LSBA-1/4	1/4	0.250	0.252	0.487	0.062	2.60	5.40	18.00
LSBA-5/16	5/16	0.312	0.314	0.583	0.078	2.80	5.75	19.20
LSBA-3/8	3/8	0.375	0.377	0.680	0.094	3.05	6.30	21.00
LSBA-1/2	1/2	0.500	0.502	0.869	0.125	3.75	7.80	26.00

Stainless Steel Type 18-8 Internal Tooth Lock Washers Type A

Internal tooth lock washers have small teeth along the inside diameter that bite deep into the screw head as well as the work surface, to provide continuing resistance to removal rotation. They are designed to actually lock tighter as vibration increases. These washers meet standards for internal tooth lock washers type A under ANSI/ASME B 18.21.1 1999.

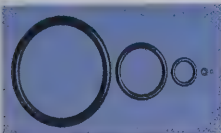


S/S 18-8 Internal Tooth Lock Washers - Type A

Dimensions in Inches							
Part No.	Nominal Size	Major Diameter	Min. I.D.	Max. O.D.	Thickness (T)	10	25
LSXA-02	2	0.086	0.089	0.200	0.010	—	\$1.15
LSXA-04	4	0.112	0.115	0.270	0.015	—	1.15
LSXA-06	6	0.138	0.141	0.295	0.017	—	1.15
LSXA-08	8	0.164	0.168	0.340	0.018	—	1.15
LSXA-10	10	0.190	0.195	0.381	0.020	—	1.15
LSXA-1/4	1/4	0.250	0.256	0.478	0.023	—	1.45
LSXA-5/16	5/16	0.312	0.320	0.610	0.028	1.05	2.15
LSXA-3/8	3/8	0.375	0.384	0.692	0.032	1.65	3.35
LSXA-1/2	1/2	0.500	0.512	0.900	0.037	2.60	5.40

Ceramic Standoff-Glazed Steatite

Dimensions in Inches					
Part No.	Thread	O.D.	Length	Min. Thread Depth	Each
RSTC-0632-08	#6-32	3/8	1/2	5/32	\$3.40
RSTC-0632-12	#6-32	3/8	3/4	1/4	3.60
RSTC-0632-16	#6-32	3/8	1	3/8	3.80
RSTC-0632-20	#6-32	3/8	1-1/4	3/8	3.90
RSTC-0632-24	#6-32	3/8	1-1/2	3/8	4.00
RSTC-0632-32	#6-32	3/8	2	3/8	4.20
RSTC-1420-20	1/4-20	1	1-1/4	7/16	4.80
RSTC-1420-24	1/4-20	1	1-1/2	1/2	6.00
RSTC-1420-32	1/4-20	1"	2"	3/8"	6.00



Buna-N O-rings

A firm, rugged, flexible, nitrile elastomer closely approximates the perfect hydraulic seal. For installation, simply stretch them over large diameters, or fold them for insertion into small diameters. No adhesives, and no special tools necessary. Temperature range - 20° to

400°F (-29° to 204°C) with limited serviceability up to 600°F (315°C).
Durometer reading: 70A. Color: Black.

Expanded Sizes

Buna-N O-Rings

Part No.	Nominal Size			Actual Size			Each	10	25	100
	I.D.	O.D.	Width	I.D.	O.D.	Width				
ORB-001	1/32	3/32	1/32	0.029	0.040	0.040	-	-	\$1.00	\$2.50
ORB-002	3/64	9/64	1/32	0.042	0.050	0.050	-	-	1.00	2.50
ORB-003	1/16	3/16	1/16	0.056	0.060	0.060	-	-	1.00	2.50
ORB-004	5/64	13/64	1/16	0.070	0.070	0.070	-	-	1.00	2.50
ORB-005	3/32	7/32	1/16	0.101	0.070	0.070	-	-	1.00	2.50
ORB-006	1/8	1/4	1/16	0.114	0.070	0.070	-	-	1.00	2.50
ORB-007	5/32	9/32	1/16	0.145	0.070	0.070	-	-	1.00	2.50
ORB-008	3/16	5/16	1/16	0.176	0.070	0.070	-	-	1.00	2.50
ORB-009	7/32	11/32	1/16	0.208	0.070	0.070	-	-	1.00	2.50
ORB-010	1/4	3/8	1/16	0.239	0.070	0.070	-	-	1.05	3.00
ORB-011	5/16	7/16	1/16	0.301	0.070	0.070	-	-	1.05	3.00
ORB-012	3/8	1/2	1/16	0.364	0.070	0.070	-	-	1.05	3.00
ORB-013	7/16	9/16	1/16	0.426	0.070	0.070	-	-	1.10	3.30
ORB-014	1/2	5/8	1/16	0.489	0.070	0.070	-	-	1.10	3.30
ORB-015	9/16	11/16	1/16	0.551	0.070	0.070	-	-	1.20	3.75
ORB-016	5/8	3/4	1/16	0.614	0.070	0.070	-	-	1.30	3.90
ORB-017	11/16	13/16	1/16	0.676	0.070	0.070	-	-	1.35	4.20
ORB-018	3/4	7/8	1/16	0.739	0.070	0.070	-	-	1.35	4.50
ORB-019	13/16	15/16	1/16	0.801	0.070	0.070	-	-	1.60	5.25
ORB-020	7/8	1	1/16	0.864	0.070	0.070	-	-	1.60	5.25
ORB-021	15/16	1-1/16	1/16	0.926	0.070	0.070	-	-	1.65	5.40
ORB-022	1	1-1/8	1/16	0.989	0.070	0.070	-	-	1.80	6.00
ORB-023	1-1/16	1-3/16	1/16	1.051	0.070	0.070	-	-	2.00	6.60
ORB-024	1-1/8	1-1/4	1/16	1.114	0.070	0.070	-	-	2.00	6.60
ORB-025	1-3/16	1-5/16	1/16	1.176	0.070	0.070	-	1.05	2.15	7.20
ORB-026	1-1/4	1-3/8	1/16	1.239	0.070	0.070	-	1.20	2.45	8.10
ORB-027	1-5/16	1-7/16	1/16	1.301	0.070	0.070	-	1.20	2.50	8.25
ORB-028	1-3/8	1-1/2	1/16	1.364	0.070	0.070	-	1.25	2.60	8.70
ORB-029	1-1/2	1-5/8	1/16	1.489	0.070	0.070	-	1.30	2.70	9.00
ORB-030	1-5/8	1-3/4	1/16	1.614	0.070	0.070	-	1.55	3.25	10.80
ORB-031	1-3/4	1-7/8	1/16	1.739	0.070	0.070	-	1.70	3.70	10.95
ORB-032	1-7/8	2	1/16	1.864	0.070	0.070	-	1.90	4.15	12.30
ORB-033	2	2-1/8	1/16	1.989	0.070	0.070	-	2.35	5.10	15.05
ORB-034	2-1/8	2-1/4	1/16	2.114	0.070	0.070	-	2.55	5.55	16.40
ORB-035	2-1/4	2-3/8	1/16	2.239	0.070	0.070	-	2.55	5.55	16.40
ORB-036	2-3/8	2-1/2	1/16	2.364	0.070	0.070	-	2.75	5.95	17.65
ORB-037	2-1/2	2-5/8	1/16	2.489	0.070	0.070	-	2.75	6.00	17.80
ORB-038	2-5/8	2-3/4	1/16	2.614	0.070	0.070	-	2.95	6.45	19.15
ORB-039	2-3/4	2-7/8	1/16	2.739	0.070	0.070	-	3.15	6.80	20.25
ORB-040	2-7/8	3	1/16	2.864	0.070	0.070	-	3.20	7.00	20.75
ORB-041	3	3-1/8	1/16	2.989	0.070	0.070	-	3.70	8.00	23.80
ORB-042	3-1/4	3-3/8	1/16	3.239	0.070	0.070	-	4.00	8.75	25.95
ORB-043	3-1/2	3-5/8	1/16	3.489	0.070	0.070	-	4.20	9.20	27.30
ORB-044	3-3/4	3-7/8	1/16	3.739	0.070	0.070	-	4.90	10.70	31.70
ORB-045	4	4-1/8	1/16	3.989	0.070	0.070	-	5.05	11.05	32.80
ORB-046	4-1/4	4-3/8	1/16	4.239	0.070	0.070	-	5.50	11.95	35.50
ORB-047	4-1/2	4-5/8	1/16	4.489	0.070	0.070	-	6.10	13.35	39.60
ORB-048	4-3/4	4-7/8	1/16	4.739	0.070	0.070	-	7.15	15.65	46.45
ORB-049	5	5-1/8	1/16	4.989	0.070	0.070	-	9.25	20.25	60.10
ORB-050	5-1/4	5-3/8	1/16	5.239	0.070	0.070	-	9.25	20.21	60.10
ORB-102	1/16	1/4	3/32	0.049	0.103	0.103	-	-	1.50	4.30
ORB-103	3/32	9/32	3/32	0.081	0.103	0.103	-	-	1.50	4.30
ORB-104	1/8	5/16	3/32	0.112	0.103	0.103	-	-	1.05	3.05
ORB-105	5/32	11/32	3/32	0.143	0.103	0.103	-	-	1.05	3.05
ORB-106	3/16	3/8	3/32	0.174	0.103	0.103	-	-	1.05	3.05
ORB-107	7/32	13/32	3/32	0.206	0.103	0.103	-	-	1.05	3.05
ORB-108	1/4	7/16	3/32	0.237	0.103	0.103	-	-	1.05	3.05
ORB-109	5/16	1/2	3/32	0.299	0.103	0.103	-	-	1.05	3.00
ORB-110	3/8	9/16	3/32	0.362	0.103	0.103	-	-	1.05	3.00
ORB-111	7/16	5/8	3/32	0.424	0.103	0.103	-	-	1.15	3.60
ORB-112	1/2	11/16	3/32	0.487	0.103	0.103	-	-	1.20	3.75
ORB-113	9/16	3/4	3/32	0.549	0.103	0.103	-	-	1.20	3.75
ORB-114	5/8	13/16	3/32	0.612	0.103	0.103	-	-	1.25	3.80
ORB-115	11/16	7/8	3/32	0.674	0.103	0.103	-	-	1.30	4.20
ORB-116	3/4	15/16	3/32	0.737	0.103	0.103	-	-	1.35	4.50

Buna-N O-Rings

Part No.	Dimensions in Inches						Each	10	25	100
	Nominal Size			Actual Size						
	I.D.	O.D.	Width	I.D.	O.D.	Width				
ORB-117	13/16	1	3/32	0.799	0.103	-	-	\$1.40	\$4.60	
ORB-118	7/8	1-1/16	3/32	0.862	0.103	-	-	1.50	4.80	
ORB-119	15/16	1-1/8	3/32	0.924	0.103	-	-	1.65	5.40	
ORB-120	1	1-3/16	3/32	0.987	0.103	-	-	1.75	5.70	
ORB-121	1-1/16	1-1/4	3/32	1.049	0.103	-	-	1.85	6.15	
ORB-123	1-3/16	1-3/8	3/32	1.174	0.103	-	-	2.00	6.60	
ORB-124	1-1/4	1-7/16	3/32	1.237	0.103	-	-	2.30	7.40	
ORB-125	1-5/16	1-1/2	3/32	1.299	0.103	-	1.15	2.35	7.80	
ORB-126	1-3/8	1-9/16	3/32	1.362	0.103	-	1.30	2.60	6.95	
ORB-127	1-7/16	1-5/8	3/32	1.424	0.103	-	1.45	2.95	7.90	
ORB-128	1-1/2	1-11/16	3/32	1.487	0.103	-	1.60	3.25	8.60	
ORB-129	1-9/16	1-3/4	3/32	1.549	0.103	-	1.60	3.25	8.60	
ORB-130	1-5/8	1-13/16	3/32	1.612	0.103	-	1.70	3.50	9.25	
ORB-131	1-11/16	1-7/8	3/32	1.674	0.103	-	1.75	3.60	9.50	
ORB-132	1-3/4	1-15/16	3/32	1.737	0.103	-	1.85	3.75	9.95	
ORB-133	1-13/16	2	3/32	1.799	0.103	-	1.95	4.00	10.65	
ORB-134	1-7/8	2-1/16	3/32	1.862	0.103	-	1.95	4.00	10.65	
ORB-135	1-15/16	2-1/8	3/32	1.925	0.103	-	1.95	4.00	10.65	
ORB-136	2	2-3/16	3/32	1.987	0.103	-	2.10	4.25	11.35	
ORB-137	2-1/16	2-1/4	3/32	2.050	0.103	-	2.10	4.25	11.35	
ORB-138	2-1/8	2-5/16	3/32	2.112	0.103	-	2.10	4.25	11.35	
ORB-139	2-3/16	2-3/8	3/32	2.175	0.103	-	2.40	4.90	12.95	
ORB-140	2-1/4	2-7/16	3/32	2.237	0.103	-	2.40	4.90	12.95	
ORB-141	2-5/16	2-1/2	3/32	2.300	0.103	-	2.65	5.40	14.35	
ORB-142	2-3/8	2-9/16	3/32	2.362	0.103	-	2.65	5.50	14.60	
ORB-143	2-7/16	2-5/8	3/32	2.425	0.103	-	2.75	5.65	15.05	
ORB-144	2-1/2	2-11/16	3/32	2.487	0.103	-	2.95	6.10	16.20	
ORB-145	2-9/16	2-3/4	3/32	2.550	0.103	-	2.95	6.10	16.20	
ORB-146	2-5/8	2-13/16	3/32	2.612	0.103	-	2.95	6.10	16.20	
ORB-147	2-11/16	2-7/8	3/32	2.675	0.103	-	2.95	6.10	16.20	
ORB-148	2-3/4	2-15/16	3/32	2.737	0.103	-	2.95	6.10	16.20	
ORB-149	2-13/16	3	3/32	2.800	0.103	-	3.15	6.45	17.10	
ORB-150	2-7/8	3-1/16	3/32	2.862	0.103	-	3.15	6.45	17.10	
ORB-151	3	3-3/16	3/32	2.987	0.103	-	3.40	6.95	18.50	
ORB-152	3-1/4	3-7/16	3/32	3.237	0.103	-	4.00	8.25	22.00	
ORB-153	3-1/2	3-11/16	3/32	3.487	0.103	-	4.20	8.70	23.10	
ORB-154	3-3/4	3-15/16	3/32	3.737	0.103	-	4.20	8.70	23.10	
ORB-155	4	4-3/16	3/32	3.987	0.103	-	5.50	11.30	30.05	
ORB-156	4-1/4	4-7/16	3/32	4.237	0.103	-	6.75	13.90	37.00	
ORB-157	4-1/2	4-11/16	3/32	4.487	0.103	-	6.95	14.30	38.15	
ORB-158	4-3/4	4-15/16	3/32	4.737	0.103	-	7.15	14.75	39.30	
ORB-159	5	5-3/16	3/32	4.987	0.103	-	7.80	16.05	42.75	
ORB-160	5-1/4	5-7/16	3/32	5.237	0.103	-	8.40	17.35	46.20	
ORB-161	5-1/2	5-11/16	3/32	5.487	0.103	-	9.25	19.10	50.85	
ORB-162	5-3/4	5-15/16	3/32	5.737	0.103	-	10.95	22.55	60.10	
ORB-163	6	6-3/16	3/32	5.987	0.103	-	11.35	23.40	62.40	
ORB-164	6-1/4	6-7/16	3/32	6.237	0.103	1.45	13.05	29.35	-	
ORB-165	6-1/2	6-11/16	3/32	6.487	0.103	1.50	13.50	30.40	-	
ORB-166	6-3/4	6-15/16	3/32	6.737	0.103	1.50	13.50	30.40	-	
ORB-167	7	7-3/16	3/32	6.987	0.103	1.50	13.50	30.40	-	
ORB-168	7-7/14	7-7/16	3/32	7.237	0.103	1.65	14.85	-	-	
ORB-169	7-1/2	7-11/16	3/32	7.487	0.103	1.70	15.30	-	-	
ORB-170	7-3/4	7-15/16	3/32	7.737	0.103	1.75	15.75	-	-	
ORB-171	8	8-3/16	3/32	7.987	0.103	2.15	19.35	-	-	
ORB-172	8-1/4	8-7/16	3/32	8.237	0.103	2.25	20.25	-	-	
ORB-173	8-1/2	8-11/16	3/32	8.487	0.103	2.40	21.60	-	-	
ORB-174	8-3/4	8-15/16	3/32	8.737	0.103	2.60	23.40	-	-	
ORB-175	9	9-3/16	3/32	8.987	0.103	2.85	25.65	-	-	
ORB-176	9-1/4	9-7/16	3/32	9.237	0.103	3.10	27.90	-	-	
ORB-177	9-1/2	9-11/16	3/32	9.487	0.103	3.20	28.80	-	-	
ORB-178	9-3/4	9-15/16	3/32	9.737	0.103	3.35	30.15	-	-	
ORB-201	3/16	7/16	1/8	0.171	0.139	-	-	1.40	4.45	
ORB-202	1/4	1/2	1/8	0.234	0.139	-	-	1.55	4.90	
ORB-203	5/16	9/16	1/8	0.296	0.139	-	-	1.65	5.30	
ORB-204	3/8	5/8	1/8	0.359	0.139	-	-	1.65	5.30	
ORB-205	7/16	11/16	1/8	0.421	0.139	-	-	1.65	5.30	
ORB-206	1/2	3/4	1/8	0.484	0.139	-	-	0.00	6.50	
ORB-207	9/16	13/16	1/8	0.546	0.139	-	-	1.95	6.20	
ORB-208	5/8	7/8	1/8	0.609	0.139	-	-	2.00	6.60	
ORB-209	11/16	15/16	1/8	0.671	0.139	-	-	2.75	8.85	
ORB-210	3/4	1	1/8	0.734	0.139	-	1.00	2.05	6.65	
ORB-211	13/16	1-1/16	1/8	0.796	0.139	-	1.00	2.05	6.70	
ORB-212	7/8	1-1/8	1/8	0.859	0.139	-	1.05	2.20	6.95	
ORB-213	15/16	1-3/16	1/8	0.921	0.139	-	1.05	2.20	7.00	
ORB-214	1	1-1/4	1/8	0.984	0.139	-	1.05	2.20	7.10	
ORB-215	1-1/16	1-5/16	1/8	1.046	0.139	-	1.10	2.25	7.15	

Buna-N O-Rings

Part No.	Dimension in Inches			Nominal Size			Actual Size			Each	10	25	100
	I.D.	O.D.	Width	I.D.	O.D.	Width	I.D.	O.D.	Width				
ORB-216	1-1/8	1-3/8	1/8	1.109	0.139	-	1.109	0.139	-	\$1.20	\$2.50	\$8.25	
ORB-217	1-3/16	1-7/16	1/8	1.171	0.139	-	1.171	0.139	-	1.30	2.70	9.00	
ORB-218	1-1/4	1-1/2	1/8	1.234	0.139	-	1.234	0.139	-	1.40	2.85	9.35	
ORB-219	1-5/16	1-9/16	1/8	1.296	0.139	-	1.296	0.139	-	1.45	3.00	9.95	
ORB-220	1-3/8	1-5/8	1/8	1.359	0.139	-	1.359	0.139	-	1.55	3.15	10.45	
ORB-221	1-7/16	1-11/16	1/8	1.421	0.139	-	1.421	0.139	-	1.60	3.30	10.90	
ORB-222	1-1/2	1-3/4	1/8	1.484	0.139	-	1.484	0.139	-	1.75	3.60	12.00	
ORB-223	1-5/8	1-7/8	1/8	1.609	0.139	-	1.609	0.139	-	1.90	3.55	11.40	
ORB-224	1-3/4	2	1/8	1.734	0.139	-	1.734	0.139	-	2.10	4.35	14.40	
ORB-225	1-7/8	2-1/8	1/8	1.859	0.139	-	1.859	0.139	-	2.20	4.10	13.15	
ORB-226	2	2-1/4	1/8	1.984	0.139	-	1.984	0.139	-	2.30	4.80	16.00	
ORB-227	2-1/8	2-3/8	1/8	2.109	0.139	-	2.109	0.139	-	2.55	4.75	15.15	
ORB-228	2-1/4	2-1/2	1/8	2.234	0.139	-	2.234	0.139	-	2.45	5.05	16.75	
ORB-229	2-3/8	2-5/8	1/8	2.359	0.139	-	2.359	0.139	-	2.95	5.55	17.65	
ORB-230	2-1/2	2-3/4	1/8	2.484	0.139	-	2.484	0.139	-	2.55	5.25	17.45	
ORB-231	2-5/8	2-7/8	1/8	2.609	0.139	-	2.609	0.139	-	3.40	6.30	20.20	
ORB-232	2-3/4	3	1/8	2.734	0.139	-	2.734	0.139	-	3.25	6.70	22.95	
ORB-233	2-7/8	3-1/8	1/8	2.859	0.139	-	2.859	0.139	-	3.60	6.70	21.45	
ORB-234	3	3-1/4	1/8	2.984	0.139	-	2.984	0.139	-	3.45	7.10	23.65	
ORB-235	3-1/8	3-3/8	1/8	3.109	0.139	-	3.109	0.139	-	4.00	7.50	24.00	
ORB-236	3-1/4	3-1/2	1/8	3.234	0.139	-	3.234	0.139	-	4.20	7.90	25.20	
ORB-237	3-3/8	3-5/8	1/8	3.359	0.139	-	3.359	0.139	-	4.20	7.90	25.20	
ORB-238	3-1/2	3-3/4	1/8	3.484	0.139	-	3.484	0.139	-	4.45	8.30	26.50	
ORB-239	3-5/8	3-7/8	1/8	3.609	0.139	-	3.609	0.139	-	4.45	8.30	26.50	
ORB-240	3-3/4	4	1/8	3.734	0.139	-	3.734	0.139	-	4.65	8.70	27.75	
ORB-241	3-7/8	4-1/8	1/8	3.859	0.139	-	3.859	0.139	-	4.75	8.85	28.25	
ORB-242	4	4-1/4	1/8	3.984	0.139	-	3.984	0.139	-	5.05	9.45	30.25	
ORB-243	4-1/8	4-3/8	1/8	4.109	0.139	-	4.109	0.139	-	5.50	10.25	32.80	
ORB-244	4-1/4	4-1/2	1/8	4.234	0.139	-	4.234	0.139	-	5.70	10.65	34.05	
ORB-245	4-3/8	4-5/8	1/8	4.359	0.139	-	4.359	0.139	-	6.30	11.85	37.80	
ORB-246	4-1/2	4-3/4	1/8	4.484	0.139	-	4.484	0.139	-	6.30	11.85	37.80	
ORB-247	4-5/8	4-7/8	1/8	4.609	0.139	-	4.609	0.139	-	7.40	13.80	44.15	
ORB-248	4-3/4	5	1/8	4.734	0.139	-	4.734	0.139	-	7.60	14.20	45.40	
ORB-249	4-7/8	5-1/8	1/8	4.859	0.139	-	4.859	0.139	-	8.00	15.00	47.90	
ORB-250	5	5-1/4	1/8	4.984	0.139	-	4.984	0.139	-	8.00	15.00	47.90	
ORB-251	5-1/8	5-3/8	1/8	5.109	0.139	-	5.109	0.139	-	8.40	15.75	50.40	
ORB-252	5-1/4	5-1/2	1/8	5.234	0.139	-	5.234	0.139	-	8.40	15.75	50.40	
ORB-253	5-3/8	5-5/8	1/8	5.359	0.139	-	5.359	0.139	-	8.85	16.55	52.95	
ORB-254	5-1/2	5-3/4	1/8	5.484	0.139	-	5.484	0.139	-	9.70	18.15	58.00	
ORB-255	5-5/8	5-7/8	1/8	5.609	0.139	-	5.609	0.139	-	10.10	18.90	60.50	
ORB-256	5-3/4	6	1/8	5.734	0.139	-	5.734	0.139	-	10.50	19.70	63.00	
ORB-257	5-7/8	6-1/8	1/8	5.859	0.139	-	5.859	0.139	-	10.95	20.50	65.55	
ORB-258	6	6-1/4	1/8	5.984	0.139	-	5.984	0.139	-	11.35	21.30	68.05	
ORB-259	6-1/4	6-1/2	1/8	6.234	0.139	1.45	6.234	0.139	1.45	13.05	29.35	-	
ORB-260	6-1/2	6-3/4	1/8	6.484	0.139	1.45	6.484	0.139	1.45	13.05	29.35	-	
ORB-261	6-3/4	7	1/8	6.734	0.139	1.55	6.734	0.139	1.55	13.95	-	-	
ORB-262	7	7-1/4	1/8	6.984	0.139	1.60	6.984	0.139	1.60	14.40	-	-	
ORB-263	7-1/4	7-1/2	1/8	7.234	0.139	1.75	7.234	0.139	1.75	15.75	-	-	
ORB-264	7-1/2	7-3/4	1/8	7.484	0.139	1.75	7.484	0.139	1.75	15.75	-	-	
ORB-265	7-3/4	8	1/8	7.734	0.139	1.90	7.734	0.139	1.90	17.10	-	-	
ORB-266	8	8-1/4	1/8	7.984	0.139	1.95	7.984	0.139	1.95	17.55	-	-	
ORB-267	8-1/4	8-1/2	1/8	8.234	0.050	2.00	8.234	0.050	2.00	18.00	-	-	
ORB-268	8-1/2	8-3/4	1/8	8.484	0.139	2.20	8.484	0.139	2.20	19.80	-	-	
ORB-269	8-3/4	9	1/8	8.734	0.139	2.40	8.734	0.139	2.40	21.60	-	-	
ORB-270	9	9-1/4	1/8	8.984	0.139	2.40	8.984	0.139	2.40	21.60	-	-	
ORB-271	9-1/4	9-1/2	1/8	9.234	0.139	2.40	9.234	0.139	2.40	21.60	-	-	
ORB-272	9-1/2	9-3/4	1/8	9.484	0.139	2.40	9.484	0.139	2.40	21.60	-	-	
ORB-273	9-3/4	10	1/8	9.734	0.139	2.40	9.734	0.139	2.40	21.60	-	-	
ORB-274	10	10-1/4	1/8	9.984	0.139	2.40	9.984	0.139	2.40	21.60	-	-	
ORB-275	10-1/2	10-3/4	1/8	10.484	0.139	2.60	10.484	0.139	2.60	23.40	-	-	
ORB-276	11	11-1/4	1/8	10.984	0.139	2.85	10.984	0.139	2.85	25.65	-	-	
ORB-277	11-1/2	11-3/4	1/8	11.484	0.139	2.85	11.484	0.139	2.85	25.65	-	-	
ORB-278	12	12-1/4	1/8	11.984	0.139	3.10	11.984	0.139	3.10	27.90	-	-	
ORB-279	13	13-1/4	1/8	12.984	0.139	3.80	12.984	0.139	3.80	-	-	-	
ORB-280	14	14-1/4	1/8	13.984	0.139	4.65	13.984	0.139	4.65	-	-	-	
ORB-281	15	15-1/4	1/8	14.984	0.139	5.45	14.984	0.139	5.45	-	-	-	
ORB-282	16	16-1/4	1/8	15.955	0.139	5.95	15.955	0.139	5.95	-	-	-	
ORB-283	17	17-1/4	1/8	16.955	0.139	6.65	16.955	0.139	6.65	-	-	-	
ORB-284	18	18-1/4	1/8	17.955	0.139	7.60	17.955	0.139	7.60	-	-	-	
ORB-309	7/16	13/16	3/16	0.412	0.210	-	0.412	0.210	-	1.15	2.35	7.90	
ORB-310	1/2	7/8	3/16	0.475	0.210	-	0.475	0.210	-	1.25	2.55	8.70	
ORB-311	9/16	15/16	3/16	0.537	0.210	-	0.537	0.210	-	1.25	2.55	8.70	
ORB-312	5/8	1	3/16	0.600	0.210	-	0.600	0.210	-	1.50	3.00	10.25	
ORB-313	11/16	1-1/16	3/16	0.662	0.210	-	0.662	0.210	-	1.55	3.15	10.75	
ORB-314	3/4	1-1/8	3/16	0.725	0.210	-	0.725	0.210	-	1.55	3.15	10.75	
ORB-315	13/16	1-3/16	3/16	0.787	0.210	-	0.787	0.210	-	1.60	3.25	11.05	

Buna-N O-Rings

Part No.	Dimension in Inches						Each	10	25	100
	Nominal Size			Actual Size						
	I.D.	O.D.	Width	I.D.	O.D.	Width				
ORB-316	7/8	1-1/4	3/16	0.850	0.210	-	\$1.75	\$3.50	\$12.00	
ORB-317	15-16	1-5/16	3/16	0.912	0.210	-	1.75	3.50	12.00	
ORB-318	1	1-3/8	3/16	0.975	0.210	-	1.75	3.50	12.00	
ORB-319	1-1/16	1-7/16	3/16	1.037	0.210	-	1.95	3.95	13.40	
ORB-320	1-1/8	1-1/2	3/16	1.100	0.210	-	2.05	4.15	14.20	
ORB-321	1-3/16	1-9/16	3/16	1.162	0.210	-	2.05	4.15	14.20	
ORB-322	1-1/4	1-5/8	3/16	1.225	0.210	-	2.05	4.15	14.20	
ORB-323	1-5/16	1-11/16	3/16	1.287	0.210	-	2.05	4.15	14.20	
ORB-324	1-3/8	1-3/4	3/16	1.350	0.210	-	2.05	4.15	14.20	
ORB-325	1-1/2	1-7/8	3/16	1.475	0.210	-	2.15	4.45	14.75	
ORB-326	1-5/8	2	3/16	1.600	0.210	-	2.20	4.50	14.85	
ORB-327	1-3/4	2-1/8	3/16	1.725	0.210	-	2.75	5.70	18.90	
ORB-328	1-7/8	2-1/4	3/16	1.850	0.210	-	2.65	5.15	16.95	
ORB-329	2	2-3/8	3/16	1.975	0.210	-	3.35	7.00	23.35	
ORB-330	2-1/8	2-1/2	3/16	2.100	0.210	-	3.25	6.30	20.55	
ORB-331	2-1/4	2-5/8	3/16	2.225	0.210	-	3.50	6.80	22.25	
ORB-332	2-3/8	2-3/4	3/16	2.350	0.210	-	3.80	7.35	24.15	
ORB-333	2-1/2	2-7/8	3/16	2.475	0.210	-	3.55	7.35	24.50	
ORB-334	2-5/8	3	3/16	2.600	0.210	-	4.25	8.25	27.05	
ORB-335	2-3/4	3-1/8	3/16	2.725	0.210	-	4.55	8.85	29.00	
ORB-336	2-7/8	3-1/4	3/16	2.850	0.210	-	4.95	9.60	31.40	
ORB-337	3	3-3/8	3/16	2.975	0.210	-	4.10	8.55	28.40	
ORB-338	3-1/8	3-1/2	3/16	3.100	0.210	-	5.15	9.95	32.65	
ORB-339	3-1/4	3-5/8	3/16	3.225	0.210	-	5.70	11.05	36.25	
ORB-340	3-3/8	3-3/4	3/16	3.350	0.210	-	6.05	11.80	38.65	
ORB-341	3-1/2	3-7/8	3/16	3.475	0.210	-	4.75	9.90	32.95	
ORB-342	3-5/8	4	3/16	3.600	0.210	-	6.65	12.90	42.30	
ORB-343	3-3/4	4-1/8	3/16	3.725	0.210	-	6.85	13.25	43.50	
ORB-344	3-7/8	4-1/4	3/16	3.850	0.210	-	6.85	13.25	43.50	
ORB-345	4	4-3/8	3/16	3.975	0.210	-	5.65	11.75	39.15	
ORB-346	4-1/8	4-1/2	3/16	4.100	0.210	-	7.60	14.70	48.30	
ORB-347	4-1/4	4-5/8	3/16	4.225	0.210	-	7.60	14.70	48.30	
ORB-348	4-3/8	4-3/4	3/16	4.350	0.210	-	7.60	14.70	48.30	
ORB-349	4-1/2	4-7/8	3/16	4.475	0.210	-	8.35	16.20	53.15	
ORB-350	4-5/8	5	3/16	4.600	0.210	-	8.70	16.95	55.55	
ORB-351	4-3/4	5-1/8	3/16	4.725	0.210	-	8.70	16.95	55.55	
ORB-352	4-7/8	5-1/4	3/16	4.850	0.210	-	9.10	17.65	58.00	
ORB-353	5	5-3/8	3/16	4.975	0.210	-	9.45	18.40	60.40	
ORB-354	5-1/8	5-1/2	3/16	5.100	0.210	-	10.25	19.85	65.25	
ORB-355	5-1/4	5-5/8	3/16	5.225	0.210	-	11.35	22.05	72.45	
ORB-356	5-3/8	5-3/4	3/16	5.350	0.210	-	11.35	22.05	72.45	
ORB-357	5-1/2	5-7/8	3/16	5.475	0.210	-	11.75	22.80	74.90	
ORB-358	5-5/8	6	3/16	5.600	0.210	-	12.50	24.30	79.70	
ORB-359	5-3/4	6-1/8	3/16	5.725	0.210	-	12.50	24.30	79.70	
ORB-360	5-7/8	6-1/4	3/16	5.850	0.210	-	13.25	25.75	84.55	
ORB-361	6	6-3/8	3/16	5.975	0.210	-	13.65	26.50	86.95	
ORB-362	6-1/4	6-5/8	3/16	6.225	0.210	1.75	15.75	-	-	
ORB-363	6-1/2	6-7/8	3/16	6.475	0.210	1.85	16.65	-	-	
ORB-364	6-3/4	7-1/8	3/16	6.725	0.210	1.90	17.10	-	-	
ORB-365	7	7-3/8	3/16	6.975	0.210	2.00	18.00	-	-	
ORB-366	7-1/4	7-5/8	3/16	7.225	0.210	2.00	18.00	-	-	
ORB-367	7-1/2	7-7/8	3/16	7.475	0.210	2.15	19.35	-	-	
ORB-368	7-3/4	8-1/8	3/16	7.725	0.210	2.15	19.35	-	-	
ORB-369	8	8-3/8	3/16	7.975	0.210	2.25	20.25	-	-	
ORB-370	8-1/4	8-5/8	3/16	8.225	0.210	2.50	22.50	-	-	
ORB-371	8-1/2	8-7/8	3/16	8.475	0.210	2.60	23.40	-	-	
ORB-372	8-3/4	9-1/8	3/16	8.725	0.210	2.60	23.40	-	-	
ORB-373	9	9-3/8	3/16	8.975	0.210	2.85	25.65	-	-	
ORB-374	9-1/4	9-5/8	3/16	9.225	0.210	2.90	26.10	-	-	
ORB-375	9-1/2	9-7/8	3/16	9.475	0.210	2.95	26.55	-	-	
ORB-376	9-3/4	10-1/8	3/16	9.725	0.210	3.00	27.00	-	-	
ORB-377	10	10-3/8	3/16	9.975	0.210	3.00	27.00	-	-	
ORB-378	10-1/2	10-7/8	3/16	10.475	0.210	3.80	-	-	-	
ORB-379	11	11-3/8	3/16	10.975	0.210	4.05	-	-	-	
ORB-380	11-1/2	11-7/8	3/16	11.475	0.210	4.15	-	-	-	
ORB-381	12	12-3/8	3/16	11.975	0.210	4.30	-	-	-	
ORB-382	13	13-3/8	3/16	12.975	0.210	4.30	-	-	-	
ORB-383	14	14-3/8	3/16	13.975	0.210	5.70	-	-	-	
ORB-384	15	15-3/8	3/16	14.975	0.210	5.70	-	-	-	

High Performance Teflon® Coated Fiberglass Tape and Fabric

A strong fiberglass substrate coated with non-stick PTFE (Polytetrafluoroethylene) resists high temperatures, chemicals, moisture and abrasion, with excellent dimensional stability. Used in electronics, packaging, chemical processing, and automotive industries, tape has a non-conductive, pressure-sensitive silicone adhesive that withstands temperatures from -100° to 500°F (-74° to 260°C). Clean-release adhesive. Use PTFE coated fiberglass fabric for non-adhesive applications in temperatures to 550°F (288°C). Dielectric strength for tapes: 2500 volts - 3 mil / 5500 volts - 10 mil. Color: Natural Brown.



Teflon® Coated Fiberglass Fabric - No Adhesive

Part No.	Dimensions in Inches		Thickness		Adhesive	18 Yards
	Width	Backing				
HTT-520324	1-1/2	3 mil			None	\$38.40

Teflon® Coated Fiberglass Tape - Silicone Adhesive

Part No.	Dimensions in Inches		Thickness		Each Roll	
	Width	Backing	Adhesive		6 yards	18 Yards
HTT-210308	1/2	3 mil	2 mil		-	\$11.35
HTT-210316	1	3 mil	2 mil		\$ 8.75	21.95
HTT-210332	2	3 mil	2 mil		17.25	43.05
HTT-211008	1/2	10 mil	2 mil		10.20	25.50
HTT-211016	1	10 mil	2 mil		19.45	48.65

Conformable Teflon® Tape

This is a tough, high-density tape used in electrical products (coil wraps, separators, transformers, slot liners, harness wrapping), and in mechanical applications that require low friction and/or heat-resistant surfaces, like guide rail linings, die forming, mold release cable wrap, and roller wrapping. Known as "skived" Teflon, pure PTFE (Polytetrafluoroethylene), has a non-stick, high slip, chemical, moisture, and temperature resistant surface and excellent conformability with 100% elongation. Clean-release silicone adhesive withstands temperatures of -100° to 500°F (-74° to 260°C). Dielectric strength: 10,000 Volts. Self-wound, no liner. Color: Brown.

Conformable Teflon® Tape - Silicone Adhesive

Part No.	Dimensions in Inches		Thickness		Adhesive	36 Yards
	Width	Backing				
HTT-150208	1/2	2 mil			2 mil	\$20.80
HTT-150216	1	2 mil			2 mil	40.75

Conductive Grade PTFE "Super Slick/Super Tough" Polyethylene UHMW Tape

Ultra-high molecular weight polyethylene backed with 5 mil thick high-tack rubber adhesive make this tape super tough, and it offers the same non-stick, low co-efficient of friction as Teflon®. It reduces noise and friction with high resistance to punctures and abrasion. Applications include chute linings, sound dampening components, slides, and use in packaging systems. FDA approved. Temperature range: 0° to 150°F (-18° to 65°C). Color: Translucent White.

"Super Slick/ Super Tough" Polyethylene UHMW Tape - Rubber Adhesive

Part No.	Dimensions in Inches		Thickness		Each Roll	
	Width	Backing	Adhesive		6 yards	18 Yards
HTT-190516	1	5 mil	5 mil		\$6.90	\$17.25
HTT-190532	2	5 mil	5 mil		-	33.65

Polyimide Kapton® Tape

Superior insulating strength, high abrasion and temperature resistance. Excellent for wrapping and splicing wires and cables, and for masking wave soldering printed circuit boards, or as a high temperature mask for powder coating. Temperature range: -100° to 500°F (-73° to 260°C). Dielectric strength: 6,800 Volts Single / 7,500 Volts Double. Color: Copper.

Polymide Kapton® Tape - Silicone Adhesive

Part No.	Dimensions in Inches		Thickness		Each Roll	
	Width	Backing	Adhesive		Yards	36 Yards
HTT-180108	1/2 Single Side	1 mil	2 mil		\$3.25	\$15.90
HTT-180116	1 Single Side	1 mil	2 mil		6.50	32.50
HTT-181008	1/2 Double Side	1 mil	2 mil		9.00	45.00
HTT-181016	1 Double Side	1 mil	2 mil		17.60	87.95

Optically Clear Teflon® Tape

Exceptional electrical properties and chemical resistance in a non-yellowing, optically clear tape used as primary insulation on motors, coils and transformers; capacitors and cable terminations. Teflon® FEP (Fluorinated Ethylene-Propylene) non-yellowing tape also serves as protective overlay for cables and harnesses and as clear protection over printed surfaces, bar code sensors, etc. Dielectric strength: 8,500 Volts. Temperature range: -100° to 400°F (-73° to 204°C). Color: Clear.

Optically Clear Teflon® Tape - Silicone Adhesive

Part No.	Dimensions in Inches		Thickness		Each Roll	
	Width	Backing	Adhesive			5 yards
HTT-230216	1	2 mil	2 mil			\$15.95

Tape

High Performance • Teflon® • Kapton®

High Temperature Fiberglass Cloth Tape

Durable woven fiberglass with silicone adhesive makes a tough, temperature resistant overwrap for motor rewinds, wires and cables. Or use as masking in welding, plasma spraying, and grit blasting operations. Temperature range: -100° to 500°F (-73° to 260°C). Dielectric strength: 3,500 Volts. Meets MIL-I-19666C. Color: Ivory.

High Temperature Fiberglass Cloth Tape - Silicone Adhesive

Part No.	Dimensions in Inches		Thickness		Each Roll	
	Width	Backing	Adhesive	6 yards	36 Yards	
HTT-170408	1/2 Single Side	4 mil	4.5 mil	\$3.35		\$16.80
HTT-170416	1 Single Side	4 mil	4.5 mil	-		33.05
HTT-174508	1/2 Double Side	4 mil	3 mil	-		17.20
HTT-174516	1 Double Side	4 mil	3 mil	-		33.45

Conductive Grade PTFE Coated Fiberglass Tape

This high-strength conductive grade tape resists wear, tear, cut through, breaking and flow under heat and pressure. Fiberglass fabric coated with PTFE (Polytetrafluoroethylene) and backed with 2 mils of silicone adhesive withstands continuous use temperatures up to 500°F (260°C) and is used in diverse industrial applications requiring release properties, static dissipative performance, and resistance to chemicals and environmental conditions. Color: Black.

Conductive Grade PTFE Coated Fiberglass Tape - Silicone Adhesive

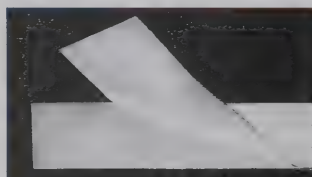
Part No.	Dimensions in Inches		Thickness		Each Roll	
	Width	Backing	Adhesive	6 yards	36 Yards	
HTT-200516	1	5 mil	2 mil	\$16.35		\$40.80

High Temperature Insulating Tape

Thermosetting, heat-stable insulation for motor leads, switches, furnace and oven controls. This woven insulating glass cloth tape won't shrink, rot or burn, and it is corrosion resistant. High mechanical strength and heat resistance rated to 266°F (130°C). Tensile strength: 150 pounds/inch. Dielectric breakdown/volts: 3,000. Thickness: 7 mil. Meets MIL-I-15126F.

Scotch® 27 - High Temperature Glass Cloth/Tape

Part No.	Dimensions in Inches		Feet per Roll	Per Roll
	Width	Thickness		
ECT-04	1/4		180	\$8.00
ECT-08	1/2		180	16.00
ECT-16	1		180	32.00



Hook And Loop Gripper Strip

Gripper Strip is a strong, lightweight and versatile fastener, available in the familiar "Sew-On" style, and with pressure sensitive backing for use on surfaces that cannot be sewn. Each style is a mating of "Grips" and "Strips". The strip side is a knitted nylon base with loops, the grip side is a polyester back with

polypropylene hooks (grabbing in all directions). All gripper strip materials are formulated for marine, outdoor and industrial use.

When ordering: You will note that each side of the mated tapes has a price of its own and must be ordered individually. Mix and match sew-on with pressure sensitive, wide with narrow, in many useful and creative combinations.

Hook & Loop - Gripper Strip

Part No.	Dimensions in Inches		Size/Color	5 ft.	10 ft.	25 ft.
	Description	Thickness				
GS-PH-12	Pressure Sensitive-Hook	3/4 White		\$4.85	\$8.05	\$16.75
GS-PH-16	Pressure Sensitive-Hook	1 White		5.65	9.35	19.50
GS-PH-32	Pressure Sensitive-Hook	2 White		9.45	15.75	32.75
GS-PH-64	Pressure Sensitive-Hook	4 White		9.80	16.35	34.00
GS-PL-12	Pressure Sensitive-Loop	3/4 White		4.85	8.05	16.75
GS-PL-16	Pressure Sensitive-Loop	1 White		5.65	9.35	19.50
GS-PL-32	Pressure Sensitive-Loop	2 White		9.45	15.75	32.75
GS-PL-64	Pressure Sensitive-Loop	4 White		9.80	16.35	34.00
GS-SH-12	Sew On-Hook	3/4 White		2.30	3.85	7.95
GS-SH-16	Sew On-Hook	1 White		2.65	4.45	9.25
GS-SH-32	Sew On-Hook	2 White		4.25	7.10	14.75
GS-SL-12	Sew On-Loop	3/4 White		2.30	3.85	7.95
GS-SL-16	Sew On-Loop	1 White		2.65	4.45	9.25
GS-SL-32	Sew On-Loop	2 White		4.25	7.10	14.75



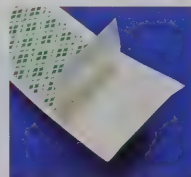
Versiwrap™ Tape

Strong and elastic, Versiwrap™ silicone rubber tape bonds to itself for tough, permanent resilience and cohesive insulation. Use it for coils, tool handles, joint seals, cable splices and terminations - and many other applications.

Designed with a triangular guideline for perfect half-lap wrapping, this tape gives a uniform wrap over any shape. Versiwrap™ protects against vibration and shock and will not crack or separate with expansion or contraction stresses. It is composed of specially formulated silicone rubber to provide self-bonding, self-curing properties for void-free insulation within 24 hours at room temperature. Performs in temperature ranges from -76° to 392°F (-60° to 200°C) for continuous use or -85° to 500°F (-65° to 260°C) for intermittent applications. Should be stored in a cool, dry place for optimum shelf life. Rolls are 36 feet long. Color: Red.

Silicone Rubber

Part No.	Width	Thickness	Per 36 Foot Roll
SRT-012	1"	0.020"	\$11.15
SRT-015	1"	0.030"	13.70
SRT-020	1"	0.040"	18.50

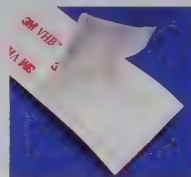


Double Sided Urethane Foam

A-20 Acrylic Adhesive. This high density foam tape has long-aging acrylic adhesive on both sides. Its A-20 designation rates its ultimate bond strength very high, with good initial peel strength. A good

choice for a variety of mounting and holding jobs, for reducing vibration transmission and for providing thermal insulation. Tape can be applied to most clean, dry surfaces including smooth or rough. Thickness: 0.032" (0.08mm), Density: 20.0 lb/ft³ (320 kg/m³)

DSA-40-01 Foam Tape - 1" x 12" \$1.90



Double Sided Acrylic Foam

A-30 Acrylic Adhesive.

White closed cell acrylic foam tape provides high strength, long-aging acrylic adhesive on both sides. This A-30 Acrylic tape features excellent immediate tack and the

highest peel strength in a pressure sensitive system. Industrial assembly applications of double coated acrylic tapes provide an alternative to mechanical fasteners and liquid adhesives. Thickness: 0.045" (1.14mm), Density: 50.0 lb/ft³ (800 kg/m³)

DSA-49-01 Foam Tape - 1" x 12" \$2.50

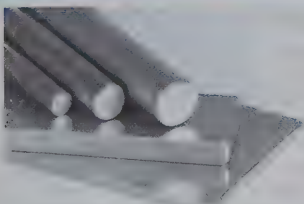


Double Sided Paper

R-50 Rubber Adhesive. Coated on both sides with a high shear adhesive, this paper tissue tape provides an exceedingly high level of adhesion to most clean, smooth surfaces. Can be used to

hold non-magnetic parts for machining applications. Total thickness: 0.009" (0.23mm), tape thickness: 0.005" (0.13mm) Adhesion to Steel: 50 oz/in.

DSA-41-10 2" wide x 10' rolls \$18.00



Aluminum, obtained principally from bauxite, alumina (aluminum oxide), is a white metal with a slightly bluish coloration. Pure aluminum (99.9%) melts at 1220°F (660°C). Its density is .097 lbs / in³ and has approximately two-thirds the thermal and electrical conductivity of copper, and it is nonmagnetic. Aluminum has a high strength-to-weight ratio, is resistant to tarnishing and corrosion, and has an attractive silvery appearance. Aluminum is an extremely versatile material, it may be cast or wrought, it is available in a variety of alloys and tempers, and accepts many different kinds of surface finishes, including anodic treatments. Machinability is considered easy and it can be soldered and welded.

Aluminum Rod Type 2024-T4 / 2024-T351 ASTM-B211

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZR2A-03	3/16	T4	-	-	-	\$2.05	\$2.55
ZR2A-04	1/4	T4	-	-	2.15	3.60	4.45
ZR2A-06	3/8	T4	1.15	1.90	3.15	5.25	6.55
ZR2A-08	1/2	T4	1.40	2.35	3.90	6.50	8.10
ZR2A-16	1	T351	3.95	6.60	10.95	18.20	22.75

Order Example: ZR2A-06-36 is 3/8" dia. x 36"

Aluminum Rod Type 6061-T6 ASTM-B221

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZRA-02*	1/8	-	-	-	-	\$1.35	\$1.80
ZRA-03	3/16	-	-	-	-	1.60	2.20
ZRA-04	1/4	-	-	-	-	1.85	2.50
ZRA-05	5/16	-	-	1.25	2.15	2.85	-
ZRA-06	3/8	-	-	1.55	2.80	3.80	-
ZRA-08	1/2	-	1.35	2.40	4.35	5.95	-
ZRA-10	5/8	1.25	2.00	3.65	6.55	8.95	-
ZRA-12	3/4	1.40	2.55	4.65	8.45	11.50	-
ZRA-14	7/8	1.75	3.20	5.75	10.45	14.25	-
ZRA-16	1	2.20	4.00	7.25	13.25	17.95	-
ZRA-20	1-1/4	2.65	5.30	9.00	18.00	27.00	-
ZRA-22	1-3/8	3.40	6.80	11.25	22.50	33.75	-
ZRA-24	1-1/2	3.85	7.70	12.50	25.00	37.50	-
ZRA-32	2	6.45	12.90	22.20	44.40	66.60	-

Part No.	Dimensions in Inches		1"	3"	6"	12"
	Diameter	Temper				
ZRA-40	2-1/2	-	\$4.25	\$12.75	\$25.50	\$44.40
ZRA-48	3	-	4.60	13.80	27.60	48.00
ZRA-56	3-1/2	-	6.20	18.60	37.20	68.40
ZRA-64	4	-	8.00	24.00	48.00	81.00
ZRA-80	5	-	12.75	38.25	76.50	130.80
ZRA-96	6	-	16.95	50.85	101.70	179.40

*ASTM-B211

Square Bar

Aluminum Square Bar Type 2024-T4/2024-T351 ASTM-B211

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZSA-04	1/4	T4	-	\$1.60	\$2.85	\$5.25	\$7.10
ZSA-06	3/8	T4	-	2.10	3.85	6.95	9.55
ZSA-08	1/2	T4	2.15	3.85	7.00	12.75	17.35
ZSA-10	5/8	T351	2.65	4.80	8.75	15.85	21.60
ZSA-12	3/4	T351	3.45	6.25	11.40	20.75	28.25
ZSA-16	1	T351	6.00	10.85	19.75	35.85	48.90

Aluminum Square Bar Type 6061-T6 ASTM-B211

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZS6A-04	1/4	-	-	-	\$1.65	\$2.80	\$3.50
ZS6A-06	3/8	-	\$1.25	\$2.05	3.35	5.60	7.00
ZS6A-08	1/2	-	1.25	3.05	5.05	8.40	10.50
ZS6A-10	5/8	-	3.05	5.05	8.40	14.00	17.50
ZS6A-12	3/4	-	3.65	6.05	10.10	16.80	21.00
ZS6A-16	1	-	6.50	10.80	18.00	30.00	37.50

Rectangular Bar

Aluminum Rectangular Bar Type 2024-T4/2024-T351 ASTM-B211

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZRT2A-02/16	1/8 x 1	T4	\$1.30	\$2.35	\$4.25	\$7.50	\$9.75
ZRT2A-02/32	1/8 x 2	T4	2.55	4.60	8.15	14.25	16.75
ZRT2A-04/16	1/4 x 1	T4	2.40	4.20	7.30	12.35	15.15
ZRT2A-06/16	3/8 x 1	T4	3.35	6.00	10.65	18.65	21.95
ZRT2A-06/32	3/8 x 2	T4	4.95	8.70	15.05	25.40	30.60
ZRT2A-08/16	1/2 x 1	T351	3.75	6.75	11.95	20.95	24.70
ZRT2A-08/32	1/2 x 2	T351	6.10	10.75	18.55	32.45	40.85
ZRT2A-16/32	1 x 2	T351	12.10	21.35	36.90	64.55	78.65

Aluminum Rectangular Bar Type 6061-T6 ASTM-B211

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZRTA-02/08	1/8 x 1/2	-	-	-	\$1.25	\$2.25	\$3.05
ZRTA-02/12	1/8 x 3/4	-	-	-	1.75	2.95	4.00
ZRTA-02/16	1/8 x 1	-	-	-	1.95	3.15	4.25
ZRTA-03/08	3/16 x 1/2	-	-	-	1.75	3.20	4.35
ZRTA-03/12	3/16 x 3/4	-	-	-	2.00	3.35	4.60
ZRTA-03/16	3/16 x 1	-	-	-	2.25	3.60	4.90
ZRTA-04/08	1/4 x 1/2	-	1.20	-	2.15	4.10	5.25
ZRTA-04/12	1/4 x 3/4	-	1.30	-	2.25	4.20	5.55
ZRTA-04/16	1/4 x 1	-	1.35	-	2.45	4.40	5.95
ZRTA-06/08	3/8 x 1/2	-	2.15	-	3.30	5.50	7.75
ZRTA-06/12	3/8 x 3/4	1.25	2.25	-	4.00	6.50	9.10
ZRTA-06/16	3/8 x 1	1.40	2.60	-	4.50	7.20	9.80
ZRTA-08/12	1/2 x 3/4	1.50	2.75	-	4.80	7.85	10.70
ZRTA-08/16	1/2 x 1	1.75	3.20	-	5.70	9.30	12.90

Brass

Brass is an excellent metal for cold working and is easily shaped. It is rust proof, corrosion resistant, and polishes to a rich golden color. Brass is easily soldered and brazed and accepts plating readily. The typical composition is 70% copper and 30% zinc. Increasing zinc content increases strength and ductility, while also producing a more "golden" color variation.

C360 — The accepted standard for screw machine work, "leaded" Brass C360 has a high zinc content (up to 37%) and a small inclusion of lead that imparts a "free-cutting" quality to this alloy. It finishes well and is easily plated, soldered and brazed.

Rod

Brass Rod Type C360 ASTM-B16

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZRB-01	1/16	-	-	-	-	\$1.80	\$2.25
ZRB-02	1/8	-	-	-	-	1.60	2.00
ZRB-03	3/16	-	-	-	1.50	2.70	3.70
ZRB-04	1/4	-	-	-	1.55	2.95	4.20
ZRB-05	5/16	-	1.25	-	2.20	4.00	5.45
ZRB-06	3/8	-	1.60	-	2.85	5.15	7.00
ZRB-08	1/2	1.50	2.65	-	4.85	8.75	11.95
ZRB-10	5/8	1.95	3.50	-	6.35	11.50	15.65
ZRB-12	3/4	3.55	5.90	-	9.85	16.40	22.35
ZRB-14	7/8	4.35	7.25	-	12.00	20.05	27.30
ZRB-16	1	4.95	8.25	-	13.70	22.80	31.05
ZRB-20	1-1/4	8.65	14.40	-	24.00	-	-
ZRB-24	1-1/2	12.45	20.70	-	34.45	-	-
ZRB-32	2	18.15	30.20	-	50.35	-	-

Part No.	Dimensions in Inches		1"	3"	6"	12"
	Diameter	Temper				
ZRB-40	2-1/2	-	\$9.00	\$27.00	\$54.00	\$90.00
ZRB-48	3	-	12.35	37.05	74.10	123.60

Order Example: ZRB-08-24 is 1/2" dia. x 24"

Square Bar

Brass Square Bar Type C360 ASTM-B16

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter	Temper					
ZSB-02	1/8	-	-	-	\$1.55	\$2.80	\$3.80
ZSB-03	3/16	-	-	-	2.15	3.85	5.20
ZSB-04	1/4	-	1.45	-	2.65	4.80	6.55
ZSB-05	5/16	-	1.25	2.15	3.90	7.05	9.60
ZSB-06	3/8	-	1.80	3.25	5.85	10.65	14.50
ZSB-08	1/2	-	2.45	4.45	8.10	14.70	20.00
ZSB-10	5/8	-	3.70	6.70	12.15	22.10	30.10
ZSB-12	3/4	-	5.20	9.45	17.15	31.20	42.50
ZSB-14	7/8	-	6.60	11.95	21.75	39.50	53.95
ZSB-16	1	-	7.80	14.15	25.75	46.80	63.80



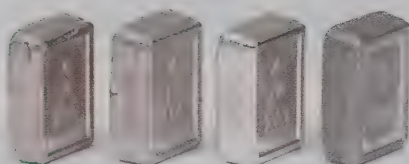
Melting Pot

Versatile and easy to use, this Melting Pot requires a minimum of adjustments. The symmetrical reflective housing allows for quick melting with low current requirement. The flow control valve adjusts easily and you can rotate the valve rod through 360 degrees for quick reseating. We use this melting pot at Small Parts, to melt LMA ingots for use in bending hypodermic tubing. The high capacity pot will hold 20 pounds of lead; and there is a 4" clearance below the spout. Melting

Pots have a stable temperature range of approximately 450°F (232°C) at the low setting, to 900°F (482°C) at the high setting. Approximate dimensions: 9-1/2"H x 9"D x 6-1/2"W. Holds 20 oz. liquid. 120 volt./700 watts. Weight: 4.5 lbs.

Note: When in use, we recommend keeping a minimum of 1" of melting material to protect the heating coil.

MEP-20....\$99.95



Bismuth Alloys

These amazing Bismuth Alloys start melting at 117°F (47°C) and solidify at room temperature, expanding slightly in the process of cooling. So dependable are the melting points of all Bismuth Alloys that they have been used in fire doors and sprinkler heads.

Thin wall metal tubing can be successfully bent without the usual distortion when filled with a low melting alloy. The tube then bends as if it were a solid bar, and the alloy can be melted out in hot water and collected for re-use.

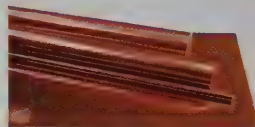
Other applications include: using dies made of Bismuth Alloys for wax patterns to reproduce fine detail and surface finish; using the Alloys as solder when high heat is undesirable; measurement of inaccessible cubic contents; and for holding delicate work in position for initial preparation for machining.

Hobbyists have dreamed up dozens of uses for these alloys, from making table top figures to increasing the weight of a model steam locomotive. These fusible metals can be melted and all four types can be recovered and used over and over again. No special furnaces are needed. We use the melting pot MEP-20 listed below.

Alloy Information	LMA-117	LMA-158	LMA-255	LMA-281
Weight Lb/in ³	0.32	0.339	0.38	0.315
Composition %				
Bismuth	44.7	50.0	55.5	58.0
Lead	22.6	26.7	44.5	--
Tin	8.3	13.3	--	42.0
Cadmium	5.3	10.0	--	--
Indium	19.1	--	--	--
Growth/Shrinkage				
Time after casting:	(Inches per Inch)			
6 Min.	+0.0002	+0.0027	-0.0011	+0.0007
30 Min.	.0000	+0.0045	-0.0010	+0.0006
1 Hour	-0.0001	+0.0051	-0.0008	+0.0006
5 Hours	-0.0002	+0.0051	.0000	+0.0005
24 Hours	-0.0002	+0.0051	+0.0008	+0.0005
21 Days	-0.0002	+0.0057	+0.0022	+0.0005

Bismuth Alloys Ingots

Part No.	Melting Temperature	Brinell Hardness	1/8 Lb.	1/4 Lb.	1 Lb.
LMA-117	117°F (47°C)	12	\$53.60	\$97.15	\$295.00
LMA-158	158°F (70°C)	9.2		5.75	19.75
LMA-0255	255°F (124°C)	10.2		6.50	20.80
LMA-0281	281°F (138°C)	22		9.50	30.40



Copper

Probably the first metal to be smelted from its ore, Copper derives its usefulness from a combination of desirable properties. It resists corrosion, provides outstanding electrical and thermal conductivity, and has good ductility with an attractive

appearance. While its strength-to-weight ratio is relatively low, Copper is considered a heavy metal, with a density of .323 lbs/in³. The pure element is salmon pink, melts at 1981°F (1083°C), and polishes to a bright metallic luster. Used in alloyed form since at least 3500 BC, it is nonmagnetic, combines well with other metals, and is easy to fabricate and join. Copper and its alloys tend to work harden, and can be hot or cold worked for increased strength.

C101 - Oxygen-Free, high conductivity copper is produced by direct conversion of selected refined cathodes and casting under carefully controlled conditions to prevent any contamination of the pure oxygen-free metal during processing. The method of producing O.F.H.C. Copper insures extra high grade of metal with a copper content of 99.99%. With so small a content of extraneous elements, the inherent properties of elemental copper are brought forth to a high degree. Characteristics are high ductility, high electrical and thermal conductivity, high impact strength, good creep resistance, ease of welding, and low volatility under high vacuum. C101 Copper conforms to ASTM B187 for bar, and ASTM B152 for plate.

Rod

Copper Rod Type C110 ASTM-B187

Dimensions in Inches		3"	6"	12"	24"	36"
Part No.	Diameter					
ZRC-02	1/8	-	-	\$1.35	\$2.20	\$3.05
ZRC-03	3/16	-	-	1.55	2.75	3.60
ZRC-04	1/4	-	1.40	2.55	4.60	6.25
ZRC-05	5/16	-	1.95	3.50	6.35	8.65
ZRC-06	3/8	1.65	2.95	5.35	9.75	13.30
ZRC-08	1/2	2.55	4.65	8.50	15.40	21.00
ZRC-10	5/8	3.90	7.05	12.85	23.35	31.85
ZRC-12	3/4	5.05	9.25	16.75	30.45	41.55
ZRC-14	7/8	7.45	13.50	24.50	44.50	60.75
ZRC-16	1	8.40	15.25	27.75	50.50	68.90

Copper Rod Type C101, Oxygen-Free ASTM B187

Dimensions in Inches		3"	6"	12"	24"	36"
Part No.	Diameter					
ZOFC-02	1/8	-	\$1.20	\$2.00	\$3.30	\$4.10
ZOFC-03	3/16	-	2.90	4.80	8.00	10.00
ZOFC-04	1/4	1.90	3.20	5.30	8.80	11.00
ZOFC-05	5/16	2.75	4.60	7.70	12.80	16.00
ZOFC-06	3/8	3.80	6.35	10.55	17.60	22.00
ZOFC-08	1/2	5.60	9.30	15.50	25.80	32.30
ZOFC-10	5/8	9.15	15.25	25.45	42.40	53.00
ZOFC-12	3/4	12.40	20.65	34.45	57.40	71.75
ZOFC-14	7/8	13.85	23.05	38.04	64.00	80.00
ZOFC-16	1	16.60	27.65	46.10	76.80	96.00

Square Bar

Copper Square Bar Type C110 ASTM-B187

Dimensions in Inches		3"	6"	12"	24"	36"
Part No.						
ZSC-04	1/4"	\$1.55	\$2.60	\$4.30	\$7.30	\$8.95
ZSC-06	3/8"	3.60	5.95	9.95	16.60	20.75
ZSC-08	1/2"	5.10	8.60	14.05	23.85	29.25

Rectangular Bar

Copper Rectangular Bar Type C110 ASTM-B187

Dimensions in Inches		3"	6"	12"	24"	36"
Part No.						
ZRTC-02/08	1/8 x 1/2	\$1.65	\$2.75	\$4.55	\$7.60	\$9.50
ZRTC-02/16	1/8 x 1	2.40	3.95	6.65	11.00	13.75
ZRTC-02/32	1/8 x 2	4.50	7.50	12.50	20.90	26.15
ZRTC-03/08	3/16 x 1/2	2.10	3.45	5.75	9.60	12.00
ZRTC-03/16	3/16 x 1	4.95	8.19	13.65	22.75	28.50
ZRTC-03/32	3/16 x 2	8.50	14.10	23.50	39.25	49.05
ZRTC-04/08	1/4 x 1/2	1.80	3.35	6.50	12.30	17.95
ZRTC-04/16	1/4 x 1	4.40	7.35	12.20	20.35	25.40
ZRTC-04/32	1/4 x 2	9.65	16.05	26.75	44.60	55.75
ZRTC-04/64	1/4 x 4	7.90	15.70	29.95	57.25	81.80

Stainless Steel

A large and widely used family of Iron-Chromium alloys. Stainless Steels are alloys of iron and carbon that contain between 12% and 30% Cr, plus other alloying elements. The chromium, which helps develop a passive surface oxide film, provides corrosion resistance in stainless steels. Stainless

steels are wrought or cast and consist of several families that are named for their metallurgical structure. Stainless steels are fabricated and welded by all common processes and are used for their corrosion resistance, high-temperature strength, scaling resistance, and low-temperature toughness. These properties account for their extremely wide use in practically every industry. Density is .29 lbs./in³ for 300 Series

Most stainless steel products in this catalog are of Type 300 series. Formability is unusually good, and cold working results in increased strength. These alloys are non-magnetic in the annealed condition, although some may become slightly magnetic after cold working. They can be hardened only by cold working, and not by heat treatment. Stainless Steel 18-8 denotes 18% chromium and 8% nickel. This generic designation Stainless Steel 18-8 includes Types 301, 302, 303, 304, and 305.

Type 301 - This type is considered part of the 18-8 series with lower nickel content. Work hardening (or strain hardening) will strengthen the material and make it slightly magnetic. Type 301 is the most work hardenable of the low nickel austenitic stainless steels and is used extensively in sheet form for structural applications.

Type 302 - Considered to be the general purpose alloy of the 300 Series of Stainless Steels. Work hardening also induces slight magnetism. This 18-8 alloy is the bench mark from which the rest of the 300 series is derived. Slight additions or deletions of elements such as carbon, nitrogen, molybdenum and sulfur determine their machinability, weldability, physical properties and end use attributes. These low nickel alloys are an important group of metals used in cryogenic applications because of their toughness at extremely low temperature.

Type 303 - A free-machining alloy with sulfur content that enhances its machinability. Typical applications include bolts, bushings, nuts, shafts, and parts produced on automatic screw machines. Good corrosion resistance in atmospheric and chemical exposures.

Type 304 - The most widely used austenitic stainless, this low carbon alloy is a good choice when exposure to fluctuating atmospheric conditions, electrical fields, chemicals, and other corrosives are of concern. A general purpose Stainless Steel, it is used extensively for storage of liquefied gases, in hospital, laboratory and food processing equipment, and for transportation and waste-water treatment applications.

Type 316 - A slightly higher nickel and molybdenum content produces superior corrosion resistance. Welding characteristics are very good. Widely used in marine environments and in applications that requires exposure to acetic acid compounds, and other chemical corrosives.

Type 316L - Low carbon version of 316 series for welding applications.

Type 440C - This high-carbon chromium steel can be heat-treated 58-62 Rockwell C, to the highest of any of the corrosion resistant stainless steels, and performs well against wear and abrasion. Primarily used for tooling, bearings, bushings, valve parts, and other components, its high hardening properties are also valued in the cutlery industry. Moderately magnetic.

Type PH 17-7 - Semi austenitic precipitation hardening stainless steel is similar in composition to the standard 18-8 variety but has lower nickel content. This material exhibits good corrosion resistance and excellent fatigue properties, retaining its load bearing ability with little or no relaxation up to 850° F (454°C).

Type PH 15-7 Semi austenitic precipitation hardening stainless steel that provides high strength and hardness, good corrosion resistance and minimum distortion during heat treatment. It is easily formed in the annealed condition and is ideal for retaining rings and springs.

Property	Test Units	302	302	304	316	316L	440C
Density	Lb/in ³	0.29	0.29	0.29	0.29	0.29	0.28
Tensile Strength-Ultimate	Ksi*	90	90	85	85	85	110
Tensile Strength- Yield	Ksi	40	35	35	35	35	65
Elongation	% in 2in	55	50	55	60	60	30
Brinell Hardness	-	150	160	150	150	150	58-62**
Machinability	Bessemer Screw Stock B1112	40%	70%	45%	45%	45%	40%

*ksi: kip per square inch = 1000 Lbs. per square inch

** Rockwell C

Note: Typical Values "Not For Design Purposes"

Rod

Precision Centerless Ground Rod Type 303

Part No.	Dimensions in Inches		6"	12"	24"	36"
	Shaft Dia.					
CGSX-01	1/16	0.0625	\$1.25	\$1.95	\$3.25	\$4.10
CGSX-015	3/32	0.0938	1.40	2.30	3.85	4.80
CGSX-02	1/8	0.1250	1.90	3.20	5.30	6.60
CGSX-025	5/32	0.1563	2.20	3.60	6.00	7.50
CGSX-03	3/16	0.1875	2.45	4.05	6.75	8.45
CGSX-035	7/32	0.2188	2.95	4.90	8.15	10.15
CGSX-04	1/4	0.2500	3.40	5.70	9.50	11.85
CGSX-05	5/16	0.3125	4.40	7.30	12.20	15.25
CGSX-06	3/8	0.3750	6.20	10.35	17.30	21.60
CGSX-08	1/2	0.5000	11.30	18.85	31.40	39.25
CGSX-10	5/8	0.6250	14.15	23.55	39.30	49.10
CGSX-12	3/4	0.7500	18.25	30.45	50.70	63.40
CGSX-16	1	1.000	27.75	46.25	77.10	96.35

Metric	Dimensions in Millimeter		6"	12"	24"	36"
CGSX-M04	4 mm	\$2.90	\$4.80	\$7.95	\$9.95	
CGSX-M05	5 mm	3.70	6.15	10.25	12.85	
CGSX-M06	6 mm	4.55	7.55	12.55	15.70	
CGSX-M07	7 mm	4.65	7.75	12.90	16.10	
CGSX-M08	8 mm	5.95	9.95	16.65	20.80	
CGSX-M10	10 mm	7.95	13.25	22.10	27.60	
CGSX-M12	12 mm	10.10	16.80	28.00	35.00	

Rod

Stainless Steel Rod Type 303 ASTM-A582

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter						
ZRX-01	1/16	-	-	\$1.45	\$2.45	\$2.90	
ZRX-015	3/32	-	-	1.50	2.60	3.20	
ZRX-02	1/8	-	1.05	1.55	2.50	3.15	
ZRX-025	5/32	-	1.20	1.95	3.30	4.15	
ZRX-03	3/16	-	1.45	2.40	4.05	5.00	
ZRX-035	7/32	-	1.55	2.65	4.40	5.50	
ZRX-04	1/4	1.05	1.75	2.95	4.95	6.20	
ZRX-05	5/16	1.55	2.80	4.60	7.75	9.65	
ZRX-06	3/8	2.00	3.40	5.65	9.25	11.60	
ZRX-08	1/2	2.40	4.05	6.75	11.20	13.95	
ZRX-10	5/8	4.55	7.50	12.55	20.95	26.15	
ZRX-12	3/4	5.65	9.45	15.80	26.20	32.85	
ZRX-14	7/8	6.80	11.30	18.90	31.55	39.35	
ZRX-16	1	9.75	16.35	27.25	45.30	56.70	
ZRX-24	1-1/2	12.45	24.85	39.75	-	-	
ZRX-32	2	22.10	44.25	70.75	-	-	
ZRX-48	3	51.50	102.95	164.70	-	-	

Stainless Steel Rod Type 316 ASTM-A276

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter						
ZRXX-01	1/16	-	\$1.25	\$2.15	\$3.55	\$4.45	
ZRXX-015	3/32	-	1.40	2.25	4.05	5.00	
ZRXX-02	1/8	-	1.25	2.00	3.35	4.20	
ZRXX-03	3/16	-	1.45	1.75	3.90	4.45	
ZRXX-04	1/4	-	1.90	2.15	4.30	5.85	
ZRXX-05	5/16	-	2.50	3.30	5.90	7.95	
ZRXX-06	3/8	2.45	3.75	5.80	10.40	13.75	
ZRXX-08	1/2	3.80	5.85	9.05	16.25	22.00	
ZRXX-12	3/4	6.15	10.00	16.75	30.15	41.45	
ZRXX-14	7/8	7.75	12.85	21.35	38.60	53.20	
ZRXX-16	1	10.15	16.90	28.20	50.60	70.40	
ZRXX-24	1-1/2	17.90	29.90	47.85	-	-	
ZRXX-32	2	31.90	53.20	85.05	-	-	

Stainless Steel Rod Type 440C ASTM-A276

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter						
ZR4X-04	1/4	\$1.25	\$1.85	\$3.05	\$5.10	\$6.30	
ZR4X-08	1/2	3.05	5.10	8.50	14.25	17.75	
ZR4X-16	1	9.00	14.95	14.95	42.50	52.00	

Square Bar

Stainless Steel Square Bar Type 303 ASTM-A582

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZSX-02	1/8	-	\$1.45	\$2.40	\$4.00	\$5.00
ZSX-03	3/16	1.25	2.05	3.40	5.60	7.00
ZSX-04	1/4	2.20	3.60	6.00	10.00	12.50
ZSX-05	5/16	2.85	4.75	7.95	13.20	16.50
ZSX-06	3/8	3.10	5.20	8.60	14.40	18.00
ZSX-08	1/2	5.75	9.50	15.95	26.60	33.25
ZSX-10	5/8	7.55	12.60	21.00	35.05	43.80
ZSX-12	3/4	9.20	15.30	25.50	42.50	53.10
ZSX-16	1	15.85	16.50	44.05	76.50	91.80

Stainless Steel Square Bar Type 316 ASTM-A276

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZSXX-02	1/8	-	\$2.00	\$3.35	\$5.60	\$7.00
ZSXX-04	1/4	2.40	4.05	6.75	11.20	13.95
ZSXX-06	3/8	3.50	6.75	11.25	19.95	25.75
ZSXX-08	1/2	6.50	10.80	18.00	30.00	37.50
ZSXX-12	3/4	6.95	13.40	24.35	43.20	62.60
ZSXX-16	1	21.95	36.65	61.10	101.8	127.25

Rectangular Bar

Stainless Steel Rectangular Bar Type 303 ASTM-A582-88

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZRTX-02/04	1/8 x 1/4	\$2.25	\$4.20	\$7.85	\$13.40	\$16.75
ZRTX-02/06	1/8 x 3/8	3.30	6.20	11.55	19.80	24.75
ZRTX-02/08	1/8 x 1/2	4.40	8.25	15.40	26.40	33.00
ZRTX-02/16	1/8 x 1	5.25	9.60	18.45	31.35	41.80
ZRTX-04/08	1/4 x 1/2	7.00	13.10	24.40	41.85	52.30
ZRTX-04/12	1/4 x 3/4	10.05	18.85	35.10	60.20	75.25
ZRTX-04/16	1/4 x 1	11.15	20.90	38.95	66.80	83.50
ZRTX-04/32	1/4 x 2	18.90	34.60	66.70	113.25	151.00
ZRTX-06/08	3/8 x 1/2	7.55	13.80	26.55	45.10	60.15
ZRTX-06/12	3/8 x 3/4	11.80	22.05	41.65	70.55	88.20
ZRTX-06/16	3/8 x 1	15.60	29.20	54.55	93.45	116.80
ZRTX-06/24	3/8 x 1-1/2	15.95	23.95	55.90	95.80	119.75
ZRTX-06/32	3/8 x 2	26.80	49.15	94.70	160.75	214.35
ZRTX-08/16	1/2 x 1	15.40	28.90	53.95	92.45	115.60
ZRTX-08/24	1/2 x 1-1/2	24.20	45.40	84.70	145.25	181.50
ZRTX-08/32	1/2 x 2	28.70	53.80	100.35	171.70	215.05

Stainless Steel Rectangle Bar Type 440C ASTM-A276

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZRT4X-06/16	3/8 x 1	\$9.25	\$15.50	\$25.80	\$43.00	\$53.75
ZRT4X-08/16	1/2 x 1	10.75	18.00	30.00	50.00	62.55
ZRT4X-08/32	1/2 x 2	18.75	31.25	52.00	86.75	108.40
ZRT4X-12/24	3/4 x 1-1/2	20.75	34.50	57.50	95.90	119.90

Hexagonal Bar

Stainless Steel Hexagonal Bar Type 303 ASTM-A582/A473

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZHX-02	1/8	-	\$1.45	\$2.40	\$4.00	\$5.00
ZHX-03	3/16	-	2.30	3.85	6.40	8.00
ZHX-04	1/4	1.55	2.60	4.30	7.20	9.00
ZHX-05	5/16	2.15	3.55	5.95	9.90	12.35
ZHX-06	3/8	2.50	4.15	6.95	11.55	14.45
ZHX-08	1/2	4.55	7.55	12.60	21.00	26.25
ZHX-10	5/8	5.50	9.20	15.35	25.55	31.95
ZHX-12	3/4	8.45	14.10	23.45	39.10	48.90
ZHX-16	1	14.85	24.70	41.20	68.65	85.80

Stainless Steel Hexagonal Bar Type 316 ASTM-A276

Part No.	Dimensions in Inches Across Flats	3"	6"	12"	24"	36"
ZHXX-04	1/4	\$1.75	\$2.95	\$4.90	\$8.15	\$10.15
ZHXX-06	3/8	3.75	6.25	10.45	17.40	21.75
ZHXX-08	1/2	6.70	11.15	18.55	30.95	38.65
ZHXX-12	3/4	13.50	22.35	37.20	62.00	77.50
ZHXX-16	1	24.25	40.35	67.25	112.15	140.15

Cold Rolled Type C1018

A high quality, low carbon, smooth finished mild steel has good machining characteristics. It is easy to weld, braze and solder, making it a great material for models or prototypes.

Cold Rolled Hexagonal Bar Type C1018 Steel

Part No.	Dimensions in Inches Across Flats	3"	6"	12"	24"	36"
ZHS-03	3/16	-	-	\$1.25	\$1.85	\$2.50
ZHS-04	1/4	-	-	1.55	2.55	3.50
ZHS-05	5/16	-	1.30	2.30	4.20	5.70
ZHS-06	3/8	-	1.75	3.20	5.80	7.95
ZHS-08	1/2	-	2.05	3.95	7.45	8.95
ZHS-10	5/8	-	2.65	4.45	7.55	9.65
ZHS-12	3/4	1.95	3.45	6.25	11.40	15.55
ZHS-16	1	2.90	5.25	9.50	17.35	23.65

Cold Rolled Type C1018 Steel

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZRTS-01/08*	1/16 x 1/2	-	\$1.95	\$3.50	\$6.30	\$8.60
ZRTS-01/12	1/16 x 3/4	-	2.75	4.95	9.05	12.30
ZRTS-01/16	1/16 x 1	-	3.70	5.95	10.35	14.10
ZRTS-02/04	1/8 x 1/4	-	-	1.50	1.91	2.60
ZRTS-02/08	1/8 x 1/2	-	-	1.55	2.05	2.75
ZRTS-02/12	1/8 x 3/4	-	-	1.70	3.05	4.15
ZRTS-02/16	1/8 x 1	-	1.65	2.60	4.25	5.05
ZRTS-02/32	1/8 x 2	1.50	2.10	3.40	5.35	6.50
ZRTS-02/64	1/8 x 4	3.15	4.95	7.95	12.70	15.50
ZRTS-03/08	3/16 x 1/2	-	-	1.65	2.60	3.15
ZRTS-03/12	3/16 x 3/4	-	1.50	2.25	3.55	4.25
ZRTS-03/16	3/16 x 1	1.35	2.20	3.65	6.10	7.65
ZRTS-03/32	3/16 x 2	2.55	4.25	7.10	11.75	14.75
ZRTS-04/08	1/4 x 1/2	-	1.60	2.60	4.35	5.45
ZRTS-04/12	1/4 x 3/4	-	1.75	2.90	4.80	6.00
ZRTS-04/16	1/4 x 1	-	2.35	3.75	6.00	7.20
ZRTS-04/24	1/4 x 1-1/2	1.75	2.90	4.80	8.00	10.00
ZRTS-04/32	1/4 x 2	2.40	4.10	6.85	11.45	14.30
ZRTS-04/64	1/4 x 4	4.65	7.80	12.90	21.60	27.00
ZRTS-04/96	1/4 x 6	6.05	10.10	16.80	28.00	35.00
ZRTS-06/08	3/8 x 1/2	-	1.65	2.80	4.65	5.80
ZRTS-06/12	3/8 x 3/4	1.45	2.30	3.70	5.90	7.10
ZRTS-06/16	3/8 x 1	1.75	2.85	4.50	7.20	8.65
ZRTS-06/24	3/8 x 1-1/2	2.95	4.70	7.50	11.95	14.40
ZRTS-06/32	3/8 x 2	3.00	4.80	7.65	12.30	14.75
ZRTS-06/64	3/8 x 4	5.95	9.50	15.20	24.35	29.20

* Type C1020

Cold Rolled Rod Type C1018 Steel

Part No.	Dimensions in Inches Diameter	6"	12"	24"	36"
ZRS-02	1/8	-	-	-	\$1.55
ZRS-03	3/16	-	-	-	1.90
ZRS-04	1/4	-	-	1.55	2.25
ZRS-05	5/16	-	1.25	2.20	3.10
ZRS-06	3/8	-	1.50	2.80	3.95
ZRS-08	1/2	1.35	2.25	4.25	6.00
ZRS-10	5/8	1.80	3.30	6.30	9.00
ZRS-12	3/4	2.75	5.10	9.60	13.65
ZRS-14	7/8	3.15	5.90	11.20	15.95
ZRS-16	1	4.15	7.85	15.00	21.45
ZRS-20	1-1/4	6.95	11.55	19.25	24.00
ZRS-22	1-3/8	9.75	16.20	26.95	33.75
ZRS-24	1-1/2	9.95	16.50	27.50	34.50
ZRS-28	1-3/4	10.75	17.95	29.90	37.50
ZRS-32	2	20.10	33.45	55.70	69.65

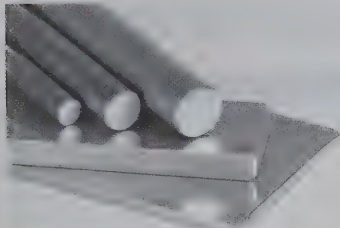
Part No.	Dimensions in Inches Diameter	1"	3"	6"	12"
ZRS-40	2-1/2	\$3.85	\$11.55	\$23.10	\$36.00
ZRS-48	3	6.45	19.35	38.00	64.20

Cold Rolled Steel Square Bar Type C1018

Part No.	Dimensions in Inches	3"	6"	12"	24"	36"
ZSS-02	1/8	-	-	-	\$1.35	\$1.75
ZSS-03	3/16	-	-	-	1.75	2.35
ZSS-04	1/4	-	-	1.35	2.40	3.30
ZSS-05	5/16	-	-	1.95	3.55	4.80
ZSS-06	3/8	-	1.50	2.55	4.60	6.25
ZSS-08	1/2	-	2.05	3.75	6.80	9.30
ZSS-12	3/4	2.10	3.75	6.85	12.50	17.05
ZSS-16	1	3.20	5.75	10.50	19.05	25.95

Cold Rolled Type 12L14

Part No.	Dimension in Inches		3"	6"	12"	24"	36"
	Across Flats						
ZHS-03	3/16	-	-	-	\$1.25	\$1.85	\$2.50
ZHS-04	1/4	-	-	-	1.55	2.55	3.50
ZHS-05	5/16	-	-	1.30	2.30	4.20	5.70
ZHS-06	3/8	-	-	1.75	3.20	5.80	7.95
ZHS-08	1/2	-	-	2.05	3.95	7.45	8.95
ZHS-10	5/8	-	-	2.65	4.45	7.55	9.65
ZHS-12	3/4	1.95	-	3.45	6.25	11.40	15.55
ZHS-16	1	2.90	-	5.25	9.50	17.35	23.65



Ground Tool Steel

Oil hardenable steel alloy is recommended for dies, punches, gauges and tools. It should be used where a greater degree of accuracy is desired in hardening. Its precise diameter and smooth finish make it excellent for use as steel shafting. Also referred to as "Silver Steel" in England.

Heat Treatment: For cross sections smaller than 1/4" heat to 1450°-1475°F (788°- 802°C) and hold until heated through. For larger sections, preheat to 1200°F (649°C), then raise to 1450°-1500°F (788°- 815°C) hardening temperature, hold half an hour per inch of cross section. Quench in oil at 125°-150°F (529°- 65°C) and TEMPER IMMEDIATELY.

Rod

Steel Ground Rod SAE 0-1

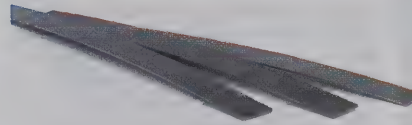
Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter						
CGDR-01	1/16	-	-	-	\$1.50	\$2.50	\$3.75
CGDR-015	3/32	-	-	-	1.80	3.45	4.85
CGDR-02	1/8	-	-	1.25	2.10	4.05	5.75
CGDR-025	5/32	-	-	1.60	2.65	4.95	7.05
CGDR-03	3/16	1.45	-	2.05	3.35	6.35	9.10
CGDR-035	7/32	1.50	-	2.15	3.60	6.80	9.70
CGDR-04	1/4	1.55	-	2.35	3.95	7.55	10.75
CGDR-05	5/16	2.20	-	4.00	8.55	14.25	18.80
CGDR-06	3/8	2.50	-	4.90	8.05	15.45	22.005
CGDR-07	7/16	3.45	-	6.60	11.05	20.95	30.00
CGDR-08	1/2	3.95	-	7.45	12.45	23.75	33.90
CGDR-10	5/8	5.80	-	11.05	18.35	35.00	50.10
CGDR-12	3/4	7.75	-	14.80	24.65	46.95	67.10
CGDR-16	1	12.60	-	24.15	40.15	76.65	-
CGDR-24	1-1/2	24.85	-	47.50	79.00	150.65	-
CGDR-32	2	45.90	-	87.70	145.90	-	-

Diameter Tolerance: ±0.0005"

Rectangular Bar

Steel Ground Rectangular Bar SAE 0-1 - Starrett®

Part No.	Dimensions in Inches		6"	12"	18"
CGFS-01/08	1/16 x 1/2		\$3.15	\$5.75	\$7.45
CGFS-01/16	1/16 x 1		3.95	7.15	9.25
CGFS-01/32	1/16 x 2		6.50	12.10	15.45
CGFS-15/08	3/32 x 1/2		4.35	8.05	10.35
CGFS-15/16	3/32 x 1		5.45	10.35	12.65
CGFS-15/32	3/32 x 2		7.45	13.75	17.75
CGFS-02/08	1/8 x 1/2		4.55	8.65	10.95
CGFS-02/16	1/8 x 1		5.75	10.95	13.80
CGFS-02/32	1/8 x 2		7.80	14.35	18.50
CGFS-03/08	3/16 x 1/2		6.90	13.25	16.75
CGFS-03/16	3/16 x 1		7.40	14.50	17.75
CGFS-03/32	3/16 x 2		10.95	20.65	26.25
CGFS-04/08	1/4 x 1/2		6.75	12.65	16.05
CGFS-04/16	1/4 x 1		8.65	16.10	20.75
CGFS-04/32	1/4 x 2		13.25	25.25	32.00



Spring Steel SAE 1095

Spring Steel is blue tempered and hardened to meet the most exacting requirements. Carbon content is in the range of 0.90 to 1.05%. Rockwell

hardness C: 48-51. This material has the highest elastic limit and fatigue values of commonly used spring steel. Recommended for coiled and flat mechanical springs such as: Ignition vibrator springs, springs for timing devices, springs for the electrical and electronic fields, steel tapes and rules.

Steel Spring Strips SAE 1095

Part No.	Dimensions in Inches		6"	12"	24"
	Width	Thickness			
FSS-05/04	1/4	0.005	\$4.15	\$6.75	\$10.80
FSS-05/08	1/2	0.005	7.30	11.85	18.95
FSS-07/04	1/4	0.007	4.75	7.75	12.35
FSS-07/08	1/2	0.007	8.55	13.85	22.15
FSS-10/04	1/4	0.010	4.15	6.50	10.80
FSS-10/06	3/8	0.010	4.25	6.90	11.05
FSS-10/08	1/2	0.010	7.40	11.85	18.95
FSS-15/04	1/4	0.015	4.70	6.95	11.50
FSS-15/06	3/8	0.015	5.25	8.50	13.60
FSS-15/08	1/2	0.015	8.00	12.35	19.10
FSS-20/04	1/4	0.020	8.15	13.25	21.15
FSS-20/06	3/8	0.020	6.15	9.95	15.95
FSS-20/08	1/2	0.020	8.25	13.35	21.40
FSS-25/04	1/4	0.025	8.25	13.50	21.30
FSS-25/08	1/2	0.025	10.20	16.55	26.50
FSS-32/04	1/4	0.032	8.30	13.25	22.50
FSS-32/08	1/2	0.032	12.50	20.30	32.50

Cast Iron

Cast Iron is a somewhat generic term that represents a large group of cast ferrous metals, distinguished by a much higher carbon content than that found in the steel family. Primarily iron alloyed with carbon (usually in the 2-5% range), cast iron contains silicon as another critical alloying element, usually from 1 to 3%. low cost, and with a wide range of properties, cast irons have excellent casting characteristics, a lower melting point than steel, and are commercially produced in six basic types: grey; white; ductile; malleable; compacted graphite; and high alloy. Density is .25 lbs/in³. Class 40 has a minimum tensile strength of 40,000 lbs/sq. in.

This high quality product has been continuous cast and offers superior and consistent density and hardness. Good machinability. We can supply cast iron with almost any specifications you require.

Round

Cast Iron Round Class 40, Grey ASTM-A48

Part No.	Dimensions in Inches		3"	6"	12"
	Diameter	Pounds Per Inch			
ZRCI-16	1	0.25	\$2.95	\$5.65	\$9.50
ZRCI-20	1-1/4	0.38	4.25	8.10	13.55
ZRCI-24	1-1/2	0.53	5.75	10.95	18.35
ZRCI-32	2	0.9	8.50	16.75	28.50
ZRCI-48	3	2.01	22.75	43.00	75.75
ZRCI-64	4	3.54	28.95	55.00	97.25
ZRCI-80	5	5.5	43.75	84.00	151.50
ZRCI-96	6	7.89	62.50	119.50	213.00

Square

Cast Iron Square Bar Class 40, Grey ASTM-A48

Part No.	Dimensions in Inches		3"	6"	12"
		Pounds Per Inch			
ZSCI-20	1-1/4	0.42	\$7.50	\$14.95	\$25.70
ZSCI-48	3	2.35	25.50	49.95	87.50



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For a complete listing of our New Products.



Nylon 6/6

Rods and Sheet are typically used as material for insulators, shaft bearings and bushings, wear strips, hinges, gears, and general fixturing. Heat deflection temperature at 264 PSI: 200°F (93°C). Color: Natural.

A tough general purpose plastic with outstanding resistance to organic

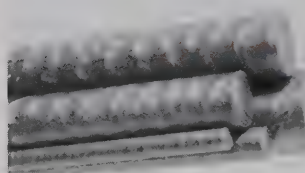
chemicals, acids and alkalis, Nylon 6/6 wears well against other surfaces and has a low coefficient of friction. It is readily machinable and may be milled, turned and cut with conventional machine tools. It does exhibit some dimensional swelling in wet applications, (up to 10%) which should be taken into account with its use.

Nylon 6/6 Rod

Part No.	Dimensions in Inches Diameter	12"	24"	36"
ZRN-01	1/16	-	-	\$2.00
ZRN-02	1/8	-	-	2.15
ZRN-03	3/16	-	-	2.15
ZRN-04	1/4	-	1.55	1.90
ZRN-05	5/16	-	1.75	2.15
ZRN-06	3/8	-	2.25	2.80
ZRN-08	1/2	1.90	3.15	3.90
ZRN-12	3/4	4.75	8.00	9.95
ZRN-16	1	6.00	9.95	12.45
ZRN-24	1-1/2	11.20	18.65	23.30
ZRN-32	2	18.35	30.55	38.15
ZRN-48	3	47.50	78.80	98.95

Nylon 6/6 Sheet

Part No.	Dimensions in Inches Thickness	6" x 12"	12" x 12"	12" x 24"
SRN-0062	1/16	\$3.50	\$6.35	\$11.55
SRN-0093	3/32	6.20	11.20	20.35
SRN-0125	1/8	6.10	11.10	20.15
SRN-0187	3/16	11.60	21.05	38.25
SRN-0250	1/4	10.50	19.05	34.65
SRN-0312	5/16	17.80	32.40	58.90
SRN-0375	3/8	21.75	39.45	71.70
SRN-0500	1/2	28.05	47.55	86.40
SRN-0625	5/8	33.65	61.05	111.00
SRN-0750	3/4	39.85	72.45	131.70
SRN-1000	1	52.60	95.65	173.95



Nylon 6/6 Molybdenum Filled Rod

This excellent combination of wearing resistant qualities of virgin Nylon 6/6 with the antifriction capability of molybdenum disulfide creates a

superior bearing and bushing material. Useful wherever lubrication is undesirable, when the part is located in a position that is difficult to service.

Nylon Molybdenum disulfide resists common solvents, hydrocarbons, esters, ketones, alkalis and dilute acids. Not resistant to phenol, formic acid or concentrated mineral acids. Tested for moisture absorption using ASTM D-570 specifications: 1.2-2.5% when saturated over a 24-hour period; 7.5-8.5% maximum saturation.

Nylon 6/6 Molybdenum Filled Rod

Part No.	Dimensions in Inches Diameter	6"	12"	24"	36"
ZRNY-03	3/16	-	\$1.40	\$2.50	\$3.40
ZRNY-04	1/4	-	1.50	2.70	3.65
ZRNY-05	5/16	-	1.70	3.00	4.15
ZRNY-06	3/8	-	2.10	3.80	5.20
ZRNY-08	1/2	1.95	3.55	6.45	8.80
ZRNY-10	5/8	3.15	5.60	10.30	14.00
ZRNY-12	3/4	4.35	7.90	14.30	19.50
ZRNY-16	1	7.30	13.30	24.20	33.00
ZRNY-24	1-1/2	14.50	26.35	47.95	65.35



Acetal (Delrin®)

Commonly referred to as Delrin®, this Acetal is a useful replacement for metal in many applications such as gears, pulleys, impellers, etc. Easily machined with all standard machine tools. Its machinability is equal to or better than free machining brass in the normal operations of milling and turning to threading and tapping. This Acetal Resin offers a high degree of di-

mensional stability, toughness, impact strength, low coefficient of friction and fair chemical resistance.

Note: Acetal may cause allergic reaction. Use of gloves and a dust mask is recommended when handling or machining.

Black Acetal Rod

Part No.	Dimensions in Inches Diameter	3"	6"	12"	24"	36"
ZRBD-02	1/8	-	-	\$1.90	\$3.20	\$4.00
ZRBD-03	3/16	-	-	1.60	2.60	3.25
ZRBD-04	1/4	-	-	1.60	2.70	3.35
ZRBD-05	5/16	-	-	1.90	3.20	4.00
ZRBD-06	3/8	-	1.60	2.65	4.40	5.45
ZRBD-08	1/2	-	2.10	3.50	5.80	7.25
ZRBD-12	3/4	2.80	4.70	7.80	13.00	16.25
ZRBD-16	1	4.90	8.15	13.55	22.65	28.30
ZRBD-24	1-1/2	10.75	17.85	29.75	49.55	61.95
ZRBD-32	2	16.30	27.20	45.25	75.45	94.35
ZRBD-48	3	35.50	59.20	98.65	164.40	205.55

Black Acetal Sheet*

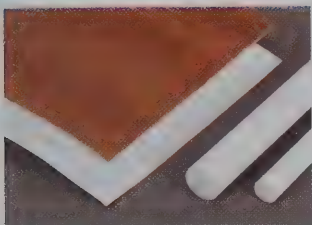
Part No.	Dimensions in Inches Thickness	6" x 6"	12" x 12"	12" x 24"
SBDE-0125	1/8	\$16.80	\$27.95	\$46.60
SBDE-0187	3/16	24.80	41.35	68.90
SBDE-0250	1/4	26.70	44.50	74.15
SBDE-0312	5/16	33.50	55.80	93.00
SBDE-0375	3/8	44.45	72.25	117.10
SBDE-0500	1/2	50.60	83.70	134.80
SBDE-0750	3/4	74.15	122.50	201.35
SBDE-1000	1	84.75	141.50	233.15

Natural (Pale Cream) Acetal Rod

Part No.	Dimensions in Inches Diameter	3"	6"	12"	24"	36"
ZRD-02	1/8	-	-	\$1.80	\$3.00	\$3.75
ZRD-03	3/16	-	-	1.85	3.15	3.05
ZRD-04	1/4	-	-	1.55	2.60	3.20
ZRD-05	5/16	-	-	1.85	3.00	3.75
ZRD-06	3/8	-	1.55	2.50	4.20	5.20
ZRD-08	1/2	-	1.95	3.35	5.50	6.90
ZRD-12	3/4	2.70	4.50	7.45	12.40	15.50
ZRD-16	1	4.65	7.75	12.95	21.50	26.90
ZRD-24	1-1/2	7.15	13.10	23.80	43.20	59.00
ZRD-32	2	10.95	19.95	36.20	65.85	89.85
ZRD-48	3	23.85	43.40	78.95	143.50	195.75

Natural (Pale Cream) Acetal Sheet*

Part No.	Dimensions in Inches Thickness	6" x 6"	12" x 12"	12" x 24"
SDE-0125	1/8	\$12.60	\$21.00	\$33.75
SDE-0187	3/16	20.95	34.85	58.15
SDE-0250	1/4	25.05	41.75	66.95
SDE-0312	5/16	32.15	53.60	89.35
SDE-0375	3/8	42.55	70.90	113.15
SDE-0500	1/2	49.30	82.25	131.60
SDE-0750	3/4	72.50	120.80	192.80
SDE-1000	1	83.00	138.35	221.35



PTFE Rod

PTFE ([Polytetrafluoroethylene] Teflon®) has established itself as a tough, durable polymer, possessing a unique combination of electrical, chemical, mechanical and thermal properties unmatched by any other single substance. Maximum operating temperature 350° to 400°F (176° to 204°C). This material should not be heated to

temperatures above 752°F (400°C).

PTFE Rod

Part No.	Dimensions in Inches		Approx. Weight/Ft.	3"	6"	12"	24"	36"
	Diameter	Actual Diameter						
ZRT-02	1/8	0.128	0.012 lb.	-	\$1.25	\$2.05	\$3.45	\$4.30
ZRT-03	3/16	0.190	0.026 lb.	-	1.50	2.50	4.15	5.20
ZRT-04	1/4	0.254	0.047 lb.	1.45	1.90	3.60	6.00	7.50
ZRT-05	5/16	0.315	0.060 lb.	1.80	3.30	4.50	8.05	11.40
ZRT-06	3/8	0.378	0.104 lb.	2.40	3.30	5.50	9.75	13.70
ZRT-08	1/2	0.505	0.187 lb.	2.75	4.50	5.95	11.50	17.70
ZRT-12	3/4	0.755	0.414 lb.	3.50	6.75	12.50	23.95	34.10
ZRT-16	1	1.006	0.734 lb.	5.75	10.95	20.85	39.75	56.80
ZRT-24	1-1/2	1.508	1.649 lb.	12.50	24.00	45.95	87.50	124.95
ZRT-32	2	2.009	2.929 lb.	19.50	37.50	71.30	136.50	194.30

PTFE Sheet is available in a series of nine thicknesses from 0.005" to 0.500". In addition, three of these thicknesses (0.015", 0.030" and 0.060") are also available in sheets which are etched on one side to make them **bondable** to other materials with most general purpose epoxies. Our stock sizes are cut from rolls and the material may be slightly curved, but it can easily be flattened by applying pressure to the whole surface.

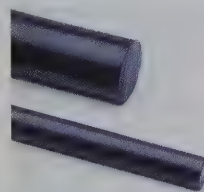
PTFE Sheet

Part No.	Dimensions in Inches		6" x 6"	6" x 12"	12" x 12"	Linear Ft.*
	Thickness					
STE-0005	0.005		\$1.25	\$2.00	\$3.00	\$2.80
STE-0015	0.015		2.65	4.45	7.40	7.05
STE-0030	0.030		5.00	8.35	13.90	12.50
STE-0060	0.060		10.00	16.50	27.80	25.00
STE-0125	0.125		19.85	33.10	55.15	49.50
STE-0187	0.187		26.15	43.60	72.60	65.35
STE-0250	0.250		33.20	55.35	92.25	83.05
STE-0375	0.375		44.95	74.90	124.80	112.35
STE-0500	0.500		57.15	95.25	158.75	142.95

Bondable PTFE Sheet - Etched on One Side

Part No.	Dimensions in Inches		6" x 6"	6" x 12"	12" x 12"	Linear Ft.*
	Thickness					
STEB-0015	0.015		\$3.60	\$6.00	\$10.00	\$9.50
STEB-0030	0.030		6.10	10.15	16.90	16.05
STEB-0060	0.060		10.15	16.95	28.25	26.75

*Minimum order of (2) linear feet



Rulon® J Rod

Rulon®-J rod is made from an all-polymeric, PTFE compound that offers low coefficient of friction (0.05 to 0.20 depending upon temperature and load), and a hardness of 60 on the Shore D scale with 0% water absorption. The material was expressly developed to run against soft materials such as brass, type 316 stainless steel, aluminum, zinc and plastics, and other materials

which are worn rapidly by existing filled PTFE compounds. Check chemical resistance before using in a harsh acid/alkali environment.

Note: Not recommended for use with nitric acid or ammonium hydroxide. Should not be used with sodium or potassium hydroxide above room temperature.

Rulon® J Rod

Part No.	Dimensions in Inches		3"	6"	12"
	Diameter				
ZRR-04	1/4		\$5.05	\$8.40	\$14.00
ZRR-06	3/8		8.05	13.40	22.35
ZRR-08	1/2		12.30	20.50	34.20
ZRR-12	3/4		28.85	48.05	80.10
ZRR-16	1		51.05	85.05	141.75

ABS Rod & Sheet

General purpose grade ABS combines heat stability, chemical resistance and surface hardness of acrylonitrile with the toughness and impact resistance of butadiene and

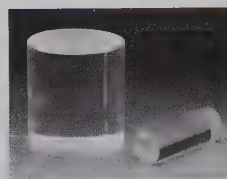
the rigidity and machineability of styrene...to give you ABS with easy formability and high gloss. Good for vacuum forming, with a normal forming temperature at 295°F (146°C) - Rockwell hardness R-105. color: natural (beige). Other grades: flame retardant, high heat, low gloss, medium impact and others are available by special order. Please call 1-800-220-4242

ABS Rod

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter						
ZAR-04	1/4		-	-	\$1.35	\$2.25	\$2.65
ZAR-06	3/8		-	1.85	3.05	5.65	6.35
ZAR-08	1/2		1.90	3.00	4.25	7.25	11.25
ZAR-12	3/4		2.50	4.50	8.00	15.25	20.90
ZAR-16	1		3.75	6.50	12.00	22.15	30.20

ABS Sheet - Untextured on Both Sides

Part No.	Dimensions in Inches		6" x 12"	12" x 12"	12" x 24"
	Thickness				
SAB-0125	1/8		\$9.00	\$15.00	\$25.00
SAB-0187	3/16		9.35	17.00	30.90
SAB-0250	1/4		13.10	23.75	43.20
SAB-0375	3/8		18.35	33.35	60.60
SAB-0500	1/2		22.15	40.25	73.15
SAB-0750	3/4		29.20	53.05	96.50
SAB-1000	1		45.90	83.45	151.75



Cast Acrylic Rod

Cast acrylic rivals glass in transparency (92% light transmission) and exhibits outstanding weatherability. The casting process produces profiles with superior optical properties compared to molded or extruded products. Physical properties are also superior with less process induced

stress (resistance to cracking/crazing). Cast acrylic is approximately 1/2 the weight of glass and fabricates similar to wood. Post machining polishing can produce crystal clear components.

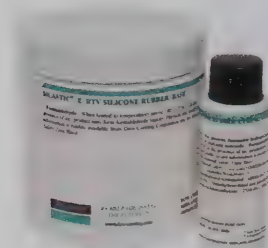
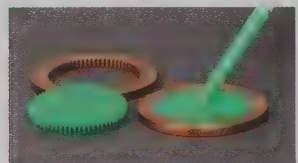
Applications include displays, models, electrical/electronic parts, special lighting applications and industrial fixturing.

Cast Acrylic Rod

Part No.	Dimensions in Inches		3"	6"	12"	24"	36"
	Diameter						
ZCAR-04	1/4		\$1.35	\$2.25	\$3.75	\$6.20	\$10.35
ZCAR-06	3/8		1.30	2.20	3.65	6.10	10.15
ZCAR-08	1/2		1.20	2.00	3.35	5.60	9.35
ZCAR-12	3/4		1.45	2.40	4.00	6.65	11.05
ZCAR-16	1		1.90	3.15	5.25	8.75	14.55
ZCAR-24	1-1/2		3.30	5.45	9.10	15.15	25.20
ZCAR-32	2		5.85	9.75	16.30	27.10	45.20
ZCAR-48	3		16.20	27.00	45.00	75.00	125.00

Cast Acrylic Sheet

Part No.	Dimensions in Inches		12" x 12"	12" x 24"
	Thickness	Thickness Tolerance		
SLU-0125	1/8	±1/32	\$11.45	\$20.85
SLU-0187	3/16	±1/32	15.85	28.50
SLU-0250	1/4	±1/32	19.35	35.20
SLU-0375	3/8	±1/32	31.75	57.70



"Quick Setting Putty" Reprorubber®
"Thin Pour" Reprorubber®

Reprorubber®

Quick, accurate reproductions with zero shrinkage

Use this metrology-grade casting material when your test and measurement applications require precise duplication of internal and external dimensions and surface finish. Forms are permanent - no leaching, oozing or outgassing. Reprorubber® readily takes impressions of metals, plastics, wood, marble, rubber, paper or cardboard items, ceramic and glass, and other materials. Other uses include fixturing, where semi-rigid structure is desired; making joints where flexibility is required, creating prototypes of rubber-type components such as gaskets, washers, etc. Or use it as a mask for high temperature plasma spray of metallic coatings. Withstands temperatures to 600°F (315°C). Non-toxic.

"Thin Pour" Reprorubber® pours into the object to be cast, filling out tiny details with exact replication. Excellent for checking parts with optical comparators, it cures quickly with zero shrinkage and works much faster than room-temperature vulcanizing Silicones. When a thin pour completely fills the cavity without voids, a detailed casting can be produced in about 20 minutes, (mix, work, and set) and no release agent is needed. Replicas are easy to remove, even if there are undercuts or grooves. Cross sectioning of the form can be done with a knife or razor. Tear strength: 44 PSI. Shore A-2 Durometer: 30 (at 15 minutes). Final Color: Light Green.

"Quick Setting Putty" Reprorubber® works even faster than Thin Pour - about 14 minutes from mix to set! Made especially for external impressions, it can also be used for internal forms and needs no release agent. Final Color: Blue. Tear strength: 44 PSI. Shore A-2 Durometer: 50.

Reprorubber®		
Part No.	Description	Each
REP-130TP	Thin Pour - 130 ml	\$48.60
REP-380TP	Thin Pour - 380 ml	120.60
REP-200QP	Quick Setting Putty - 220 ml	60.60
REP-520QP	Quick Setting Putty - 520 ml	130.80

Static® Mixing/Dispensing System

Reusable and rugged - No manual mixing!

Quickly and accurately produce Reprorubber® replicas with the Repro-Mix gun-style Mixing/Dispensing System. The helix mixer guarantees complete blending of base and catalyst. Low cost, disposable Helix Mixing Nozzle Tips attach and detach easily for multiple applications.

Each system contains:

- Dispensing Gun
- 10 Dual Barrel Cartridges (50ml)
- 20 each Helix Mixing Nozzle Tips, Caps, Plugs
- Complete instructions

Static Mixing Dispensing System		
Part	Description	Each
REP-100G	Mixing Dispensing System	\$83.40
REP-CART	Replacement Pack - 10 Dual Barrel Cartridges, 20 Caps, 20 Plugs	21.20
REP-20NZ	20 Helix Mixing Nozzle Tips	21.60

Silastic® —Silicone Rubber Molding Kit

These Room Temperature Vulcanizing (RTV) platinum cure Silicone Rubber Molding Kits are designed for use in flexible potting, encapsulating and mold making. They are Food Grade compliant pursuant to 21CFR 177.26.00. Linear shrinkage is considered "Nil" at 0.1% after 7 days. They have the highest rating for replication of intricate detail, and pattern complexity. Useful temperature range is -67 to 392°F (-55 to 200°C).

Casting Material:

This is the most important factor. Choose the product that is best for the casting material.

Material	E
Polyesters	Good
Polyurethane	Good
Epoxies	Poor
Low-Melt metals	Fair
Flow molded Vinyls	Poor

Properties								
RTV Type	Viscosity (Poise)	Hardness (Durometer: Shore A)	Psi Tensile Strength	Elongation (%)	Working Time (Hours)	Cure Time (Hours)	Tear Strength Die B, ppi	Color
E	600	33	800	400	2	24	100	White*

*Easily Pigmented

Kit includes 1 lb. silicone rubber and 1 oz. curing agent. Ground Shipment only.

SRM-1100E	Type E	\$38.00
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Stainless Steel Type 316LVM Wire

Spring tempered and diamond drawn, 316LVM Wire is formulated similar to commercial quality stainless steel, but has been refined by melting or remelting in a vacuum, a process that segregates the melt from oxygen, nitrogen and other ambient gases, resulting in a cleaner, higher-quality, more pure stainless steel.

Stainless Steel Type 316LVM offers high corrosion resistance for many conditions, particularly when working with phosphoric and acetic acids. This wire comes "gun-barrel" straight and clean with a bright finish. The sizes listed fit inside diameters of our Hypodermic Tubing as indicated below. ASTM F138.

Stainless Steel Type 316LVM Wire

Part No.	Diameter in Inches	Fits Inside Hypodermic Tubing Gauge	Diameter Tolerance in Inches	30" Length	60" Length
GWXX-0050	0.005	30		\$3.25	\$4.50
GWXX-0060	0.006	29, 28		3.25	4.50
GWXX-0070	0.007	27		3.25	4.50
GWXX-0080	0.008	—		3.25	4.50
GWXX-0090	0.009	26, 25		3.25	4.50
GWXX-0100	0.010	—		3.25	4.50
GWXX-0110	0.011	24		3.25	4.50
GWXX-0120	0.012	23		3.25	4.50
GWXX-0130	0.013	—		3.25	4.50
GWXX-0140	0.014	—		3.25	4.50
GWXX-0150	0.015	22		3.25	4.50
GWXX-0190	0.019	21	±.0002	3.25	4.50
GWXX-0200	0.020	—		3.25	4.50
GWXX-0220	0.022	21½, 20		3.25	4.50
GWXX-0250	0.025	—		3.25	4.50
GWXX-0260	0.026	19		3.75	5.70
GWXX-0280	0.028	—		3.75	5.70
GWXX-0300	0.030	—		3.75	5.70
GWXX-0320	0.032	18		5.30	8.25
GWXX-0350	0.035	—		5.30	8.25
GWXX-0400	0.040	—		5.30	8.25
GWXX-0410	0.041	17		6.45	10.00
GWXX-0450	0.045	—		6.45	10.00
GWXX-0460	0.046	16		6.75	10.70
GWXX-0500	0.050	—		7.05	11.20
GWXX-0530	0.053	15	+ .0000/- .0005	7.05	11.20
GWXX-0550	0.055	—		7.05	11.20
GWXX-0600	0.060	—		10.75	17.50
GWXX-0620	0.062	14		23.00	38.25
GWXX-0650	0.065	—		23.00	38.25
GWXX-0930	0.093	11-1/20	+ .000/- .001	35.00	58.25

* Material 60" or more will ship F.O.B. Miami Lakes, FL

Check out a few of Small Parts, Inc. stock of great Cutting Tools.

Straight Length Tungsten Wire Type 1A

Tungsten Wire has excellent strength at high temperatures and exceptional resistance to corrosion with good electrical and heat conducting properties. Its melting point is 6150°F (3400°C), the highest of any metal. Tungsten also has the highest modulus of elasticity of all metals. Tungsten Wire is straight, 30" or 60" long.

Chemically, tungsten is relatively inert. Pure tungsten metal in the form of wire, rod and sheet is important in the electric lamp and electrical industries. Industrial applications include electrodes for inert gas welding and electrical discharge machining. ASTM F 288-96 Type 1A Commercially pure 99.95%

Straight Length Tungsten Wire Type 1A

Dimensions in Inches					
Part No.	Diameter	Tolerance O.D.	Fits Inside Hypodermic Tubing Gauge	30"	60"
TW-005	0.005	±0.00015	30	\$2.30	\$3.85
TW-006	0.006	±0.00018	29, 28	2.30	3.85
TW-009	0.009	±0.00027	26, 25	2.60	4.35
TW-011	0.011	±0.00033	24	3.55	5.90
TW-015	0.015	±0.00045	22	4.30	7.20
TW-019	0.019	±0.00057	21	6.40	10.65
TW-022	0.022	±0.00066	21½, 20	5.45	9.05
TW-026	0.026	±0.00078	19	6.00	10.00
TW-032	0.032	±0.00096	18	8.30	13.80
TW-041	0.041	±0.00012	17	12.15	20.20
TW-046	0.046	±0.00014	16	14.85	24.70
TW-053	0.053	±0.00016	15	18.75	31.20
TW-062	0.062	±0.00019	14	23.35	38.95

*Special packaging charge for 60" lengths.

Straightened Spring Steel Music Wire

Straightened, hardened Spring Steel Music Wire is provided in two lengths, 18" and 36". Tensile strength is at least 220,000 psi. This material should only be cut by a cutting wheel or carbide jawed cutters. Store in protective oil. Comes in Packages of ten. ASTM A228.

Straightened Spring Steel Music Wire

Dimensions in Inches				
Part No.	Diameter	Tolerances	Ten 18" Lengths	Ten 36" Lengths
SMW-005	0.005	± 0.0003	\$6.50	\$10.85
SMW-007	0.007	± 0.0003	6.20	10.25
SMW-009	0.009	± 0.0003	5.45	9.10
SMW-012	0.012	± 0.0003	5.25	8.70
SMW-015	0.015 (1/64)	± 0.0003	3.35	5.55
SMW-020	0.020	± 0.0003	2.05	3.40
SMW-025	0.025	± 0.0005	2.25	3.95
SMW-032	0.032 (1/32)	± 0.0005	3.45	5.75
SMW-039	0.039	± 0.0005	3.00	3.85
SMW-047	0.047	± 0.0005	4.25	7.05
SMW-055	0.055	± 0.0005	4.65	7.75
SMW-062	0.062 (1/16)	± 0.0005	3.50	8.65
SMW-078	0.078	± 0.0005	4.45	7.45
SMW-093	0.093 (3/32)	± 0.0005	6.75	11.20
SMW-125	0.125 (1/8)	± 0.0005	9.25	15.45
SMW-156	0.156 (5/32)	± 0.0005	11.65	19.45
SMW-188	0.188 (3/16)	± 0.0005	16.40	27.35
SMW-219	0.219 (7/32)	± 0.001	22.10	36.80
SMW-250	0.250 (1/4)	± 0.001	27.35	45.60

Assortment

SMW-9000	36" piece. One SMW-005 through SMW-125 - 15 pieces	\$10.75
SMW-9100	36" piece. One SMW-156 through SMW-250 - 4 pieces	11.65

Note: Centerless Grinding available for "Exact" Sizing & Finishing

Coiled Stainless Steel Type 304 Wire

This wire is made from a specially controlled Type 304 Stainless Steel which results in the perfect combination of strength and ductility. Torsion straightening removes coil-set normally found in coiled spring wire. It is provided in either 30 foot or 1/4 lb. coils, with diameters ranging from 0.011" to 0.043".

30 Ft. Stainless Steel Type 304 Wire Coil

Dimensions in Inches			Breaking Strength	Tensile Range	30 Ft. Coils	
Part No.	Diameter	Tolerance	Min. - Max. (lbs.)	Min. - Max. (000 psi)	Each	10
SWX-3011	0.011	± 0.0003	27-30	286-340	\$1.80	\$16.50
SWX-3012	0.012	± 0.0004	32-35	284-346	1.90	17.00
SWX-3013	0.013	± 0.0004	38-41	282-344	1.95	17.60
SWX-3014	0.014	± 0.0004	44-48	280-342	2.15	20.00
SWX-3016	0.016	± 0.0004	58-63	277-338	2.30	20.50
SWX-3018	0.018	± 0.0004	69-75	273-334	2.50	23.00
SWX-3020	0.020	± 0.0004	86-94	270-330	2.70	25.00
SWX-3022	0.022	± 0.0004	105-115	266-326	2.90	27.00
SWX-3024	0.024	± 0.0005	124-136	262-322	2.95	27.00
SWX-3029	0.029	± 0.0005	174-191	256-315	3.40	30.50
SWX-3035	0.035	± 0.0008	240-264	252-308	4.30	39.50
SWX-3043	0.043	± 0.0008	360-396	244-300	5.65	52.00

Assortments

SWX-9000	30 ft. coil. One SWX-3011 through SWX-3029 - 10 pieces	\$22.10
SWX-9100	30 ft. coil. One SWX-3011 through SWX-3043 - 12 pieces	31.05

1/4 Lb. Stainless Steel 304 Wire Coil

Dimensions in Inches			Breaking Strength	Tensile Range	1/4 Lb. Coil	1/4 Lb. Coil
Part No.	Diameter	Tolerance	Min. - Max. (lbs.)	Min. - Max. (000 psi)	Ft./ Coil	1/4 Lb. Coil
SWX-4011	0.011	± 0.0003	27-30	286-340	775	\$13.45
SWX-4012	0.012	± 0.0004	32-35	284-346	651	13.75
SWX-4013	0.013	± 0.0004	38-41	282-344	555	13.55
SWX-4014	0.014	± 0.0004	44-48	280-342	478	13.30
SWX-4016	0.016	± 0.0004	58-63	277-338	366	11.85
SWX-4018	0.018	± 0.0004	69-75	273-334	289	10.65
SWX-4020	0.020	± 0.0004	86-94	270-330	234	10.20
SWX-4022	0.022	± 0.0004	105-115	266-326	193	10.05
SWX-4024	0.024	± 0.0005	124-136	262-322	162	9.35
SWX-4029	0.029	± 0.0005	174-191	256-315	111	8.75
SWX-4035	0.035	± 0.0008	240-264	252-308	75	8.40
SWX-4043	0.043	± 0.0008	360-396	244-300	50	8.00

Stainless Steel Type 304V Wire



Spring tempered and diamond drawn, Stainless Steel Type 304V Wire is used for dental wire, stylets, guide wires and catheter wires. Type 304V is formulated similar to commercial quality stainless steel, but it has been refined by melting or remelting in a vacuum, a process that segregates the melt from oxygen, nitrogen and other ambient gases, resulting in a cleaner, higher-quality, more pure stainless steel. Some sizes fit inside diameters of our Hypodermic Tubing. A special packaging charge is added to each order when shipping 60" lengths. The Wire comes "gun barrel" straight and clean with a bright finish.

Note: When ordering wire, always specify exact dimensions in decimals. Stating gauge sizes can lead to confusion, since wire diameters may conform to various gauging systems. Hypodermic Tubing gauges are based on the Birmingham Gauge, also known as Stub's Iron Wire Gauge. (See chart)

Stainless Steel 304V Wire					
Dimension in Inches		Fits Inside Hypodermic Tubing Gauge	Diameter Tolerance	30" Length	60" Length
Part No.	Diameter				
GWX-0050	0.005	30		\$2.20	\$3.85
GWX-0055	0.0055	-		2.45	4.25
GWX-0060	0.006	29, 28		1.95	3.40
GWX-0065	0.0065	-		2.45	4.25
GWX-0070	0.007	27		2.00	3.50
GWX-0075	0.0075	-		2.45	4.25
GWX-0080	0.008	-		2.00	3.50
GWX-0085	0.0085	-		2.30	4.05
GWX-0090	0.009	26, 25		1.95	3.45
GWX-0095	0.0095	-		2.20	3.85
GWX-0100	0.010	-		1.95	3.40
GWX-0110	0.011	24		1.95	3.40
GWX-0120	0.012	23		2.00	2.90
GWX-0130	0.013	-		2.00	3.35
GWX-0140	0.014	-		2.10	3.45
GWX-0150	0.015	22		2.10	3.45
GWX-0160	0.016	-		2.25	3.85
GWX-0170	0.017	-		2.25	3.85
GWX-0180	0.018	-		2.35	3.90
GWX-0190	0.019	21		2.35	3.90
GWX-0200	0.020	-		2.40	3.95
GWX-0210	0.021	-		2.75	4.25
GWX-0220	0.022	20		2.75	4.25
GWX-0230	0.023	-	±0.0002	2.95	4.60
GWX-0240	0.024	-		2.95	4.60
GWX-0250	0.025	-		2.95	4.60
GWX-0260	0.026	19		3.50	5.35
GWX-0270	0.027	-		3.65	5.85
GWX-0280	0.028	-		3.80	6.55
GWX-0290	0.029	-		4.25	6.85
GWX-0300	0.030	-		4.50	7.25
GWX-0310	0.031	-		4.75	7.55
GWX-0320	0.032	18		4.75	7.70
GWX-0330	0.033	-		5.25	8.35
GWX-0340	0.034	-		5.25	8.35
GWX-0350	0.035	-		5.25	8.35
GWX-0360	0.036	-		5.45	8.75
GWX-0370	0.037	-		5.50	8.80
GWX-0380	0.038	-		5.60	8.90
GWX-0390	0.039	-		5.60	9.10
GWX-0400	0.040	-		5.80	9.25
GWX-0410	0.041	17		5.80	9.25
GWX-0420	0.042	-		5.85	9.50
GWX-0430	0.043	-		5.95	9.60
GWX-0440	0.044	-		6.00	9.85
GWX-0450	0.045	-		6.20	10.00
GWX-0460	0.046	16		6.25	10.15
GWX-0470	0.047	-		6.25	10.15
GWX-0480	0.048	-		6.25	10.15
GWX-0490	0.049	-		6.25	10.15
GWX-0500	0.050	-		6.25	10.15
GWX-0510	0.051	-		6.35	10.25
GWX-0520	0.052	-		6.45	10.30
GWX-0530	0.053	15		6.45	10.35
GWX-0540	0.054	-		6.50	10.85
GWX-0550	0.055	-		6.50	10.85
GWX-0560	0.056	-	+0.000	6.50	10.85
GWX-0570	0.057	-	-0.0005	6.65	11.05
GWX-0580	0.058	-		6.65	11.05
GWX-0590	0.059	-		6.70	11.10
GWX-0600	0.060	-		6.70	11.10
GWX-0610	0.061	-		6.70	11.10
GWX-0620	0.062	14		6.70	11.10
GWX-0630	0.063	-		6.70	11.10
GWX-0640	0.064	-		6.70	11.10
GWX-0650	0.065	-		6.70	11.10
GWX-0660	0.066	-		6.70	11.10

Stainless Steel 304V Wire					
Dimension in Inches		Fits Inside Hypodermic Tubing Gauge	Diameter Tolerance	30" Length	60" Length
Part No.	Diameter				
GWX-0670	0.067	-	+0.000	\$6.70	\$11.10
GWX-0680	0.068	-	-0.0005	6.70	11.10
GWX-0690	0.069	13½, 13		7.10	11.85
GWX-0700	0.070	-		7.10	11.85
GWX-0710	0.071	-		7.10	11.85
GWX-0720	0.072	-		7.10	11.85
GWX-0730	0.073	-		7.10	11.85
GWX-0740	0.074	-		7.10	11.85
GWX-0750	0.075	-		7.10	11.85
GWX-0760	0.077	-		7.10	11.85
GWX-0770	0.076	-		7.10	11.85
GWX-0780	0.078	-		7.10	11.85
GWX-0790	0.079	-		7.10	11.85
GWX-0800	0.080	12½		8.00	13.55
GWX-0810	0.081	-		8.00	13.55
GWX-0820	0.082	-		8.00	13.55
GWX-0830	0.083	12		8.00	13.55
GWX-0840	0.084	-		8.00	13.55
GWX-0850	0.085	-		8.00	13.55
GWX-0860	0.086	-	+0.000	8.00	13.55
GWX-0870	0.087	-	-0.001	8.00	13.55
GWX-0880	0.088	-		8.00	13.55
GWX-0890	0.089	-		8.00	13.55
GWX-0900	0.090	-		8.00	13.55
GWX-0910	0.091	-		8.00	13.55
GWX-0920	0.092	11		8.00	13.55
GWX-0930	0.093	11½		8.90	14.55
GWX-0940	0.094	-		8.90	14.55
GWX-0950	0.095	-		8.90	14.55
GWX-0960	0.096	-		8.90	14.55
GWX-0970	0.097	-		8.90	14.55
GWX-0980	0.098	-		8.90	14.55
GWX-0990	0.099	-		8.90	14.55
GWX-1000	0.100	-		15.25	23.10
GWX-1010	0.101	-		15.25	23.10
GWX-1020	0.102	-		15.25	23.10
GWX-1030	0.103	-		15.25	23.10
GWX-1040	0.104	10		15.25	23.10
GWX-1050	0.105	-		15.25	23.10

*All Materials Over 60" will be Shipped F.O.B. Miami Lakes, FL

Coiled Stainless Steel 304 Annealed Wire

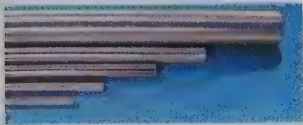


Stainless Steel Wire in its most pliable form, available in eleven diameters. Highly malleable and with high corrosion resistance, this annealed wire can be used as safety wire in some applications. 304 is formulated similar to commercial quality stainless

steel, but has been refined by melting or re-melting in a vacuum, a process that segregates the melt from oxygen, nitrogen and other ambient gases, resulting in a cleaner, higher-quality, more pure stainless steel.

Coiled Stainless Steel 304 Wire ASTM A313

Dimension in Inches			Fits Inside Hypodermic Tubing Gauge	25' Spool	100' Spool
Part No.	Diameter	Tolerance			
AWX-005	0.005	±0.0002	30	\$14.00	\$48.00
AWX-007	0.007	±0.0002	27	14.00	48.00
AWX-010	0.01	±0.0003	-	15.00	50.00
AWX-011	0.011	±0.0003	24	15.00	50.00
AWX-012	0.012	±0.0003	23	17.00	56.00
AWX-013	0.013	±0.0004	-	18.00	57.00
AWX-014	0.014	±0.0004	-	20.00	58.00
AWX-015	0.015	±0.0004	22	22.00	60.00
AWX-025	0.025	±0.0005	-	25.00	68.00
AWX-034	0.034	±0.0008	-	28.00	76.00
AWX-046	0.046	±0.0010	16	35.00	98.00



Stainless Steel 17-7 PH Spring Wire

Our Stainless Steel 17-7 precipitation-hardened Spring temper Wire is furnished cold drawn (in Condition C).

Its elastic properties permit reforming into a specific shape. It can be formed into springs or into required patterns as in the case of diagnostic catheters. This is accomplished by taking the formed cold drawn wire (Condition C) and aging it at 900°F (482°C) for one hour (to Condition CH900). This 17-7 PH Spring Wire provides good corrosion resistance, excellent fatigue properties and minimum distortion on heat treatment. In addition, the material retains its load bearing ability with little or no relaxation up to 850°F (454°C). This unique combination of high strength, excellent spring properties, and good corrosion resistance makes it useful in a wide variety of applications. Furnished clean, and in "gun-barrel" straight lengths with a bright finish.

Stainless Steel 17-7 PH Spring Wire

Dimensions in Inches			Fits Inside Hypodermic Tubing Gauge	Cold Drawn - Condition C (psi x 1000)	30"	
Part No.	Dia.	Tol.			30"	60"
SWPH-006	0.006	±0.0003	29, 28	-	\$2.25	\$3.75
SWPH-009	0.009	±0.0003	26, 25	248-305	2.95	4.95
SWPH-012	0.012	±0.0003	23	-	2.25	3.75
SWPH-015	0.015	±0.0003	22	248-305	2.95	4.95
SWPH-020	0.020	±0.0005	-	243-300	3.25	5.25
SWPH-022	0.022	±0.0005	20	234-240	3.25	5.25
SWPH-025	0.025	±0.0005	-	239-295	3.95	7.25
SWPH-030	0.030	±0.0005	18	234-290	3.95	7.25
SWPH-032	0.032	±0.0005	-	230-285	3.95	7.25
SWPH-035	0.035	±0.0005	-	234-290	8.25	11.75
SWPH-040	0.040	±0.0005	-	234-290	8.25	11.75
SWPH-045	0.045	±0.0005	16	230-285	3.95	7.25
SWPH-050	0.050	±0.0005	-	230-285	8.25	11.75
SWPH-054	0.054	±0.0005	-	225-280	3.95	7.25
SWPH-061	0.061	±0.0005	14	225-280	8.25	11.75
SWPH-065	0.065	±0.0005	-	218-272	8.30	11.95
SWPH-070	0.070	±0.0005	-	218-272	20.50	32.50
SWPH-078	0.078	±0.0005	-	207-260	8.95	13.95
SWPH-093	0.093	±0.0005	11½	207-260	8.95	13.95
SWPH-133	0.133	±0.0010	8	199-251	15.75	26.30

* Special packaging charge for 60" lengths.

Note: Centerless Grinding available for "Exact" Sizing & Finishing

Titanium Wire 6Al-4V ELI (Annealed)

ASTM F136, Etched, Cleaned, Straightened

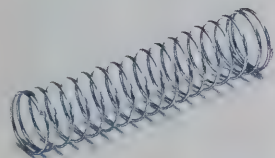
Outstanding corrosion resistance, low density (.160 lbs/in³) and excellent biocompatibility have made Titanium and its alloys the material of choice for aerospace, medical devices/implants and marine applications.

Titanium Ti6Al-4V, grade 5 is alloyed with 6% aluminum and 4% vanadium and was originally developed for the aerospace industry. This alloy accounts for approximately half of all Titanium production. The ELI (extra low interstitials) designation refers to a premium grade generally specified for medical devices and implantable bone screws, pins, staples and orthodontic appliances. Melt imperfections and interstitial elements are carefully controlled to improve ductility and fracture toughness. Enhanced surface treatment yields a clean, fairly smooth mill finish.

Titanium Wire - 6Al 4V ELI, Grade 5

Dimensions in Inches			30"	60"
Part No.	Diameter	Dia. Tol.		
TIW-0050	0.0050	± 0.0002	\$4.60	\$9.20
TIW-0100	0.0100	± 0.0003	5.30	10.65
TIW-0150	0.0150	± 0.0004	5.70	11.40
TIW-0196	0.0196	± 0.0004	3.45	6.90
TIW-0250	0.0250	± 0.0005	4.08	8.15
TIW-0280	0.0280	± 0.0005	4.50	9.05
TIW-0350	0.0350	± 0.0008	5.55	11.05
TIW-0393	0.0393	± 0.0008	6.25	12.45
TIW-0450	0.0450	± 0.0010	7.35	14.65
TIW-0500	0.0500	± 0.0010	8.60	17.15
TIW-0550	0.0550	± 0.0010	9.96	19.92
TIW-0590	0.0590	± 0.0010	10.80	21.65
TIW-0620	0.0620	± 0.0010	11.85	23.70
TIW-0787*	0.0787	± 0.0005	14.80	29.65
TIW-1250*	0.1250	± 0.0005	16.37	32.75
TIW-1870*	0.1870	± 0.0005	32.25	64.55
TIW-2500*	0.2500	± 0.0005	50.07	100.15

* = Centerless Ground



Silver Coated Beryllium Copper Compression Springs

Beryllium Copper Compression Springs are uniformly made and have superior fatigue performance. Outstanding characteristics peculiar to beryllium copper as a spring material include corrosion resistance, excellent electrical conductivity, and high fatigue strength. In addition they are nonmagnetic.



Silver Coated Beryllium Copper Compression Springs

Dimensions in Inches				Spring Rate			
Part No.	Wire Diameter	Outer Diameter	Free Length	Turns	Lbs./Inch	Each	10
CS-11*	0.072	0.813	1.580	7	11.6	\$5.00	\$41.50
CS-13*	0.072	0.770	0.690	5	23.050	3.30	27.45
CS-18*	0.051	0.423	4.060	35	3.390	5.25	43.90
CS-19*	0.051	0.370	0.430	5	59.700	3.00	24.95
CS-20*	0.051	0.345	1.500	12	22.210	12.45	103.35
CS-22	0.045	0.300	0.975	10	26.868	3.60	30.00
CS-23	0.045	0.345	1.125	11	14.710	4.35	36.25
CS-24	0.036	0.305	0.540	6	17.345	3.60	30.00
CS-25	0.036	0.393	3.200	20	3.004	1.90	15.90
CS-26	0.036	0.476	0.500	5	5.166	2.25	18.45
CS-28	0.036	0.278	2.250	28	3.890	4.45	36.95
CS-29	0.036	0.228	0.860	15	15.800	6.25	52.00
CS-30	0.032	0.500	2.300	16	0.625	3.70	30.70
CS-32	0.032	0.594	1.240	8	0.820	2.70	22.65
CS-37	0.025	0.365	1.500	16	0.650	2.35	19.65
CS-39	0.025	0.340	1.875	22	0.547	2.05	17.35
CS-41	0.025	0.408	1.750	14	0.528	1.40	12.15
CS-42	0.020	0.258	0.625	11	1.116	2.05	17.35
CS-44	0.020	0.350	1.560	18	0.393	5.10	42.75
CS-45	0.020	0.350	2.000	17	0.418	2.80	22.95
CS-46	0.020	0.297	3.240	47	0.145	1.80	14.50
CS-47	0.018	0.186	0.380	8	3.001	\$2.30	\$19.10

Silver Coated Beryllium Copper Compression Springs

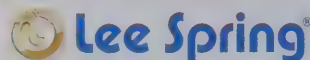
Dimensions in Inches				Spring Rate			
Part No.	Wire Diameter	Outer Diameter	Free Length	Turns	Lbs./Inch	Each	10
CS-48	0.018	0.240	0.670	11	0.881	2.65	22.10
CS-49	0.018	0.236	1.375	22	0.426	2.95	24.25
CS-50	0.018	0.285	2.000	18	0.289	2.05	16.75
CS-51	0.018	0.280	2.560	22	0.245	4.15	34.40
CS-53	0.016	0.240	1.750	22	0.244	2.35	19.65
CS-54	0.014	0.190	1.400	32	0.216	2.25	18.50
CS-55	0.013	0.195	0.550	10	0.437	1.95	15.90
CS-56	0.009	0.170	0.800	12	0.127	1.95	15.90
CS-58	0.008	0.073	0.370	22	0.642	2.25	18.50
CS-59	0.008	0.107	0.295	9	0.505	2.95	24.40

*Not available in silver coated



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Lee Spring is a world leader in the design and manufacture of springs. All music wire springs are Zinc Plated in accordance with ASTM B633 and baked for hydrogen embrittlement relief. The Stainless Steel 302 and 316 springs are passivated providing superior corrosion resistance and all are guaranteed RoHS Compliant and Certifiable.

316 Stainless Steel Instrument Compression Spring - Material is Stainless Steel 316 ASTM A313 Passivated and ultrasonically cleaned with squared ends to within 3 degrees. Excellent corrosion resistance and contaminant free packaging. Medical device, food processing, pharmaceutical, aerospace and marine applications are indicated. Generally used in lighter duty precision applications.

Stainless Steel 316 Instrument Compression Springs

Part No.	O.D.	Dimensions in Inches				2	5	10
		Wire Size	Free Length	Spring Rate	Solid Height			
CSXX-0001	0.057	0.006	0.125	3.2	0.041	\$2.55	\$5.55	\$10.00
CSXX-0002	0.057	0.006	0.188	2	0.054	2.25	4.95	8.90
CSXX-0003	0.057	0.006	0.25	1.5	0.066	2.25	4.95	8.90
CSXX-0004	0.057	0.006	0.313	1.2	0.081	2.25	4.95	8.90
CSXX-0005	0.057	0.007	0.125	5.75	0.05	2.25	4.95	8.90
CSXX-0006	0.057	0.007	0.188	3.4	0.07	2.25	4.95	8.90
CSXX-0007	0.057	0.007	0.25	2.5	0.09	2.25	4.95	8.90
CSXX-0008	0.057	0.007	0.5	1.2	0.158	2.25	4.95	8.90
CSXX-0009	0.057	0.007	0.625	0.9	0.199	2.25	4.95	8.90
CSXX-0010	0.057	0.008	0.125	9.7	0.06	2.50	5.55	9.95
CSXX-0011	0.057	0.008	0.188	6.3	0.08	2.50	5.50	9.85
CSXX-0012	0.057	0.008	0.25	4.3	0.104	2.50	5.50	9.85
CSXX-0013	0.057	0.008	0.313	3.3	0.128	2.25	4.95	8.90
CSXX-0014	0.057	0.008	0.438	2.3	0.172	2.25	4.95	8.90
CSXX-0015	0.057	0.008	0.5	2	0.196	2.25	4.95	8.90
CSXX-0016	0.057	0.008	0.563	1.8	0.21	2.25	4.95	8.90
CSXX-0017	0.057	0.008	0.625	1.7	0.243	2.25	4.95	8.90
CSXX-0018	0.088	0.008	0.125	4.6	0.042	2.50	5.50	9.90
CSXX-0019	0.088	0.008	0.188	2.9	0.052	2.25	4.95	8.90
CSXX-0020	0.088	0.008	0.25	2	0.064	2.50	5.50	9.85
CSXX-0021	0.088	0.008	0.313	1.7	0.072	2.50	5.55	9.95
CSXX-0022	0.088	0.008	0.375	1.2	0.092	2.25	4.95	8.90
CSXX-0023	0.088	0.008	0.438	1.1	0.096	2.25	4.95	8.90
CSXX-0024	0.088	0.008	0.5	0.9	0.11	2.25	4.95	8.90
CSXX-0025	0.088	0.01	0.125	10.6	0.055	2.25	4.95	8.90
CSXX-0026	0.088	0.01	0.188	5.8	0.075	2.25	4.95	8.90
CSXX-0027	0.088	0.01	0.25	4.3	0.09	2.25	4.95	8.90
CSXX-0028	0.088	0.01	0.313	3.3	0.108	2.25	4.95	8.90
CSXX-0029	0.088	0.01	0.375	2.7	0.125	2.25	4.95	8.90
CSXX-0030	0.088	0.01	0.438	2.4	0.138	2.25	4.95	8.90
CSXX-0031	0.088	0.01	0.5	2.1	0.155	2.25	4.95	8.90
CSXX-0032	0.088	0.01	0.563	1.8	0.172	2.25	4.95	8.90
CSXX-0033	0.088	0.01	0.625	1.5	0.205	2.25	4.95	8.90
CSXX-0034	0.088	0.01	0.688	1.4	0.226	2.25	4.95	8.90
CSXX-0035	0.088	0.01	0.75	1.3	0.238	1.95	4.20	7.60
CSXX-0036	0.088	0.012	0.125	21.7	0.069	1.95	4.25	7.65
CSXX-0037	0.088	0.012	0.188	12.5	0.093	1.90	4.20	7.50
CSXX-0038	0.088	0.012	0.25	9.2	0.114	1.85	4.10	7.35
CSXX-0039	0.088	0.012	0.313	7.1	0.138	1.85	4.10	7.35
CSXX-0040	0.088	0.012	0.375	5.6	0.162	1.85	4.10	7.35
CSXX-0041	0.088	0.012	0.5	4.2	0.204	1.85	4.10	7.35
CSXX-0042	0.088	0.012	0.625	3.2	0.25	1.90	4.20	7.55
CSXX-0043	0.088	0.012	0.875	2.33	0.355	1.95	4.25	7.65
CSXX-0044	0.088	0.012	1	2	0.403	1.95	4.25	7.60
CSXX-0045	0.12	0.01	0.25	2.67	0.067	1.90	4.15	7.50
CSXX-0046	0.12	0.01	0.313	2.1	0.077	2.05	4.45	8.00
CSXX-0047	0.12	0.01	0.375	1.7	0.087	1.90	4.20	7.50
CSXX-0048	0.12	0.01	0.5	1.2	0.108	1.90	4.15	7.50
CSXX-0049	0.12	0.01	0.625	1	0.128	1.90	4.20	7.55
CSXX-0050	0.12	0.01	0.75	0.8	0.149	1.95	4.20	7.60
CSXX-0051	0.12	0.012	0.25	5.4	0.084	2.00	4.40	7.90
CSXX-0052	0.12	0.012	0.313	4.2	0.097	1.90	4.15	7.45
CSXX-0053	0.12	0.012	0.375	3.4	0.111	2.00	4.35	7.85
CSXX-0054	0.12	0.012	0.438	2.9	0.125	1.95	4.25	7.60
CSXX-0055	0.12	0.012	0.5	2.5	0.138	2.00	4.35	7.85
CSXX-0056	0.12	0.012	0.563	2.2	0.152	1.85	4.10	7.35
CSXX-0057	0.12	0.012	0.625	2	0.165	1.90	4.20	7.50
CSXX-0058	0.12	0.012	1	1.2	0.247	1.95	4.25	7.65
CSXX-0059	0.12	0.016	0.25	14.6	0.114	1.90	4.20	7.55
CSXX-0060	0.12	0.016	0.375	9.2	0.16	1.65	3.65	6.55
CSXX-0061	0.12	0.016	0.5	7.1	0.205	1.90	4.15	7.50
CSXX-0062	0.12	0.016	0.75	4.2	0.305	1.95	4.25	7.60
CSXX-0063	0.12	0.016	1	3.3	0.375	1.90	4.15	7.40
CSXX-0064	0.12	0.016	1.125	2.9	0.442	1.95	4.20	7.60
CSXX-0065	0.12	0.016	1.5	2.2	0.56	2.20	4.90	8.75
CSXX-0066	0.12	0.018	0.25	23.7	0.132	2.20	4.90	8.75
CSXX-0067	0.12	0.018	0.375	15	0.18	2.00	4.35	7.85

Stainless Steel 316 Instrument Compression Springs

Part No.	O.D.	Dimensions in Inches				2	5	10
		Wire Size	Free Length	Spring Rate	Solid Height			
CSXX-0068	0.12	0.018	0.5	10.8	0.245	\$1.95	\$4.20	\$7.55
CSXX-0069	0.12	0.018	0.625	9.2	0.289	1.90	4.15	7.50
CSXX-0070	0.12	0.018	0.75	7.1	0.351	2.20	4.90	8.75
CSXX-0071	0.12	0.022	0.25	58.3	0.166	1.90	4.15	7.45
CSXX-0072	0.12	0.022	0.375	35	0.243	1.65	3.65	6.55
CSXX-0073	0.12	0.022	1	12.5	0.6	1.90	4.15	7.40
CSXX-0074	0.12	0.022	1.25	9.8	0.758	1.90	4.15	7.45
CSXX-0075	0.18	0.016	0.25	7.5	0.073	1.90	4.15	7.45
CSXX-0076	0.18	0.016	0.375	5	0.093	1.90	4.20	7.55
CSXX-0077	0.18	0.016	0.5	3.7	0.113	2.00	4.45	7.95
CSXX-0078	0.18	0.016	0.75	2.1	0.177	1.95	4.25	7.65
CSXX-0079	0.18	0.016	1	1.6	0.22	2.00	4.35	7.85
CSXX-0080	0.18	0.016	1.5	1	0.342	1.90	4.15	7.40
CSXX-0081	0.18	0.022	0.25	25	0.111	1.90	4.15	7.45
CSXX-0082	0.18	0.022	0.375	16.7	0.144	1.95	4.25	7.65
CSXX-0083	0.18	0.022	0.5	11.7	0.188	1.90	4.15	7.50
CSXX-0084	0.18	0.022	0.75	7.1	0.287	1.65	3.65	6.55
CSXX-0085	0.18	0.022	1	5.2	0.368	1.90	4.20	7.55
CSXX-0086	0.18	0.022	1.25	4.2	0.446	1.90	4.15	7.45
CSXX-0087	0.18	0.022	1.5	3.4	0.527	1.90	4.15	7.45
CSXX-0088	0.18	0.026	0.25	50	0.138	2.00	4.40	7.90
CSXX-0089	0.18	0.026	0.5	22.5	0.235	1.95	4.20	7.60
CSXX-0090	0.18	0.026	0.563	19.2	0.274	1.65	3.65	6.55
CSXX-0091	0.18	0.026	0.75	14.2	0.345	1.95	4.30	7.70
CSXX-0092	0.18	0.026	0.875	12.5	0.391	1.65	3.65	6.55
CSXX-0093	0.18	0.026	1	10.2	0.453	1.90	4.15	7.45
CSXX-0094	0.18	0.026	1.25	8.1	0.552	1.90	4.15	7.45
CSXX-0095	0.18	0.026	1.5	6.7	0.68	1.90	4.15	7.45
CSXX-0096	0.18	0.032	0.5	54.1	0.305	1.80	3.95	7.10
CSXX-0097	0.18	0.032	0.625	42.5	0.369	1.80	3.95	7.10
CSXX-0098	0.18	0.032	0.75	34.2	0.45	1.80	3.95	7.10
CSXX-0099	0.18	0.032	1	24.2	0.601	1.80	3.95	7.10
CSXX-0100	0.18	0.032	1.25	19.6	0.709	2.20	4.85	8.75
CSXX-0101	0.18	0.032	1.5	16.2	0.837	2.20	4.85	8.75
CSXX-0102	0.24	0.022	0.313	11.7	0.097	1.90	4.15	7.50
CSXX-0103	0.24	0.022	0.25	15.2	0.085	1.90	4.20	7.55
CSXX-0104	0.24	0.022	0.375	10	0.111	1.70	3.70	6.60
CSXX-0105	0.24	0.022	0.563	6.7	0.144	2.00	4.45	7.95
CSXX-0106	0.24	0.022	0.75	4.6	0.188	1.70	3.70	6.60
CSXX-0107	0.24	0.022	0.813	4.2	0.199	1.95	4.30	7.70
CSXX-0108	0.24	0.022	1	3.5	0.225	1.95	4.30	7.70
CSXX-0109	0.24	0.022	1.25	2.75	0.283	2.00	4.40	7.90
CSXX-0110	0.24	0.022	1.5	2.3	0.324	1.95	4.20	7.55
CSXX-0111	0.24	0.026	0.375	20	0.131	1.90	4.20	7.55
CSXX-0112	0.24	0.026	0.625	10.4	0.203	1.95	4.30	7.70
CSXX-0113	0.24	0.026	0.75	8.3	0.235	1.95	4.30	7.70
CSXX-0114	0.24	0.026	0.875	6.7	0.287	1.60	3.50	6.25
CSXX-0115	0.24	0.026	1	6.2	0.3	1.90	4.20	7.50
CSXX-0116	0.24	0.026	1.5	4.1	0.421	2.10	4.60	8.30
CSXX-0117	0.24	0.038	0.313	105.8	0.191	1.80	3.95	7.10
CSXX-0118	0.24	0.038	0.75	38.3	0.39	1.95	4.30	7.70
CSXX-0119	0.24	0.038	1	27.5	0.524	2.00	4.40	7.90
CSXX-0120	0.24	0.038	1.25	21.7	0.647	1.95	4.25	7.65
CSXX-0121	0.24	0.038	1.5	17.5	0.772	1.95	4.25	7.65
CSXX-0122	0.24	0.038	2.5	10.5	1.24	2.75	6.05	10.85
CSXX-0123	0.3	0.022	0.5	5.4	0.106	1.90	4.20	7.50
CSXX-0124	0.3	0.022	0.688	3.7	0.128	1.75	3.85	6.95
CSXX-0125	0.3	0.022	0.75	3.3	0.133	1.90	4.20	7.55
CSXX-0126	0.3	0.022	0.813	2.9	0.155	1.75	3.85	6.95
CSXX-0127	0.3	0.022	0.875	2.5	0.166	2.00	4.40	7.85
CSXX-0128	0.3	0.022	1	2.3	0.181	2.00	4.40	7.85
CSXX-0129	0.3	0.022	1.25	1.9	0.207	2.45	5.35	9.55
CSXX-0130	0.3	0.022	1.5	1.7	0.228	2.00	4.35	7.85
CSXX-0131	0.3	0.026	0.438	10.8	0.118	1.95	4.30	7.70
CSXX-0132	0.3	0.026	0.5	9.6	0.131	1.95	4.20	7.60
CSXX-0133	0.3	0.026	0.563	8.3	0.144	1.70	3.75	6.75
CSXX-0134	0.3	0.026	0.625	7.5	0.151	1.95	4.30	7.70

Stainless Steel Type 316 Instrument Compression

Dimensions in Inches

Part No.	O.D.	Wire Size	Free Length	Rate	Solid Height	2	5	10
CSXX-0135	0.3	0.026	0.688	6.7	0.164	\$1.70	\$3.75	\$6.75
CSXX-0136	0.3	0.026	0.75	6.2	0.17	1.70	3.75	6.75
CSXX-0137	0.3	0.026	0.813	5.8	0.183	1.95	4.20	7.60
CSXX-0138	0.3	0.026	0.875	5	0.206	1.95	4.30	7.70
CSXX-0139	0.3	0.026	0.938	4.6	0.209	1.70	3.75	6.75
CSXX-0140	0.3	0.026	1	4.2	0.229	1.95	4.25	7.60
CSXX-0141	0.3	0.026	1.25	3.6	0.255	1.95	4.30	7.75
CSXX-0142	0.3	0.026	1.5	2.9	0.301	2.00	4.35	7.75
CSXX-0143	0.3	0.032	0.438	22.5	0.169	1.95	4.25	7.65
CSXX-0144	0.3	0.032	0.688	13.3	0.241	1.80	3.95	7.10
CSXX-0145	0.3	0.032	1	8.3	0.337	1.95	4.30	7.70
CSXX-0146	0.3	0.032	1.25	7.2	0.383	2.05	4.55	8.15
CSXX-0147	0.3	0.032	1.5	5.8	0.45	1.85	4.10	7.35
CSXX-0148	0.3	0.038	0.375	53.3	0.182	1.95	4.30	7.75
CSXX-0149	0.3	0.038	0.75	23.3	0.315	1.90	4.20	7.50
CSXX-0150	0.3	0.038	0.813	21.7	0.334	1.90	4.20	7.50
CSXX-0151	0.3	0.038	1	17.5	0.4	1.95	4.30	7.70
CSXX-0152	0.3	0.038	1.25	13.3	0.495	2.00	4.40	7.85
CSXX-0153	0.3	0.038	1.5	11.2	0.571	2.00	4.40	7.90
CSXX-0154	0.3	0.045	0.375	103.3	0.226	1.90	4.20	7.55
CSXX-0155	0.3	0.045	0.5	75	0.271	1.90	4.20	7.55
CSXX-0156	0.3	0.045	0.813	42.5	0.417	1.90	4.20	7.55
CSXX-0157	0.3	0.045	1	33.3	0.518	2.00	4.40	7.95
CSXX-0158	0.3	0.045	1.25	26.7	0.631	2.10	4.55	8.20
CSXX-0159	0.3	0.045	1.5	21.7	0.743	2.00	4.40	7.90
CSXX-0160	0.36	0.026	0.5	7.5	0.108	1.95	4.30	7.70
CSXX-0161	0.36	0.026	0.75	5	0.138	1.95	4.25	7.60
CSXX-0162	0.36	0.026	0.813	4.6	0.144	1.80	3.90	7.00
CSXX-0163	0.36	0.026	0.875	4.2	0.151	1.80	3.90	7.00
CSXX-0164	0.36	0.026	1	3.3	0.17	1.80	3.90	7.00
CSXX-0165	0.36	0.026	1.125	2.9	0.19	1.80	3.90	7.00
CSXX-0166	0.36	0.026	1.5	2.2	0.239	2.10	4.65	8.35
CSXX-0167	0.36	0.026	2	1.7	0.278	2.00	4.35	7.85
CSXX-0168	0.36	0.032	0.5	15	0.145	1.90	4.20	7.50
CSXX-0169	0.36	0.032	0.75	10	0.185	1.90	4.20	7.50
CSXX-0170	0.36	0.032	0.875	8.3	0.209	1.90	4.20	7.50
CSXX-0171	0.36	0.032	1	7.1	0.241	1.90	4.20	7.50
CSXX-0172	0.36	0.032	1.5	4.6	0.338	1.90	4.20	7.50
CSXX-0173	0.36	0.032	2	3.3	0.421	2.05	4.55	8.15
CSXX-0174	0.36	0.038	0.438	31.7	0.172	1.80	3.95	7.10
CSXX-0175	0.36	0.038	0.813	15.8	0.267	1.95	4.30	7.70
CSXX-0176	0.36	0.038	1	12.5	0.324	2.00	4.40	7.85
CSXX-0177	0.36	0.038	1.5	7.5	0.477	2.00	4.40	7.85
CSXX-0178	0.36	0.038	2	6.2	0.575	2.25	4.95	8.90
CSXX-0179	0.36	0.042	0.438	46.6	0.201	1.90	4.20	7.55
CSXX-0180	0.36	0.042	0.813	23.3	0.306	1.90	4.20	7.55
CSXX-0181	0.36	0.042	1	17.5	0.379	1.90	4.20	7.55
CSXX-0182	0.36	0.042	1.5	12.1	0.527	1.90	4.20	7.55
CSXX-0183	0.36	0.042	2	8.7	0.677	2.65	5.80	10.40
CSXX-0184	0.36	0.042	2.5	6.9	0.85	2.10	4.60	8.25
CSXX-0185	0.36	0.045	0.438	62.5	0.215	2.00	4.40	7.85
CSXX-0186	0.36	0.045	0.813	30.8	0.339	1.90	4.20	7.55
CSXX-0187	0.36	0.045	1	23.3	0.417	2.00	4.40	7.90
CSXX-0188	0.36	0.045	1.5	15	0.586	2.00	4.40	7.90
CSXX-0189	0.36	0.045	1.75	12.9	0.681	2.40	5.30	9.50
CSXX-0190	0.36	0.045	2	11.1	0.762	2.10	4.65	8.35
CSXX-0191	0.42	0.038	0.5	19.2	0.172	2.00	4.40	7.85
CSXX-0192	0.42	0.038	0.875	10	0.258	2.00	4.40	7.85
CSXX-0193	0.42	0.038	1	9.2	0.286	1.95	4.30	7.75
CSXX-0194	0.42	0.038	1.5	5.8	0.381	2.00	4.40	7.85
CSXX-0195	0.42	0.038	2	4.3	0.496	2.45	5.40	9.70
CSXX-0196	0.42	0.042	0.5	28.3	0.19	2.00	4.40	7.85
CSXX-0197	0.42	0.042	0.875	15.4	0.285	2.40	5.25	9.40
CSXX-0198	0.42	0.042	1	13.3	0.316	2.40	5.25	9.40
CSXX-0199	0.42	0.042	1.5	8.7	0.442	2.45	5.35	9.55
CSXX-0200	0.42	0.047	0.5	45	0.218	2.00	4.40	7.90
CSXX-0201	0.42	0.047	0.875	23.3	0.33	2.00	4.40	7.90
CSXX-0202	0.42	0.047	1	20.8	0.377	2.00	4.40	7.90
CSXX-0203	0.42	0.047	1.5	12.9	0.519	2.45	5.35	9.60
CSXX-0204	0.42	0.047	2	9.6	0.683	2.90	6.40	11.55
CSXX-0205	0.42	0.055	0.5	79.1	0.276	2.10	4.60	8.30
CSXX-0206	0.42	0.055	1	36.7	0.469	2.10	4.60	8.30
CSXX-0207	0.42	0.055	1.5	23.3	0.661	2.45	5.35	9.65
CSXX-0208	0.42	0.055	2	17.5	0.841	2.80	6.20	11.15
CSXX-0209	0.48	0.038	0.5	16.7	0.144	2.00	4.35	7.80

Stainless Steel Type 316 Instrument Compression

Dimensions in Inches

Part No.	O.D.	Wire Size	Free Length	Rate	Solid Height	2	5	10
CSXX-0210	0.48	0.038	0.875	8.7	0.21	\$1.95	\$4.30	\$7.70
CSXX-0211	0.48	0.038	1	7.5	0.229	2.00	4.40	7.90
CSXX-0212	0.48	0.038	1.5	5	0.315	2.10	4.60	8.25
CSXX-0213	0.48	0.038	2	3.5	0.407	2.60	5.70	10.30
CSXX-0214	0.48	0.045	0.5	29.2	0.192	1.95	4.30	7.75
CSXX-0215	0.48	0.045	1	14.2	0.293	2.00	4.35	7.80
CSXX-0216	0.48	0.045	1.5	9.2	0.404	2.15	4.75	8.55
CSXX-0217	0.48	0.045	2	6.4	0.541	2.65	5.85	10.45
CSXX-0218	0.48	0.055	0.5	60	0.249	2.10	4.65	8.35
CSXX-0219	0.48	0.055	0.875	31.7	0.373	2.10	4.65	8.35
CSXX-0220	0.48	0.055	1	29.2	0.4	2.10	4.65	8.35
CSXX-0221	0.48	0.055	1.5	18.3	0.565	2.45	5.40	9.70
CSXX-0222	0.48	0.055	2	13.3	0.72	2.95	6.50	11.65
CSXX-0223	0.48	0.072	0.5	208.3	0.324	2.65	5.80	10.45
CSXX-0224	0.48	0.072	0.75	122.4	0.448	2.60	5.75	10.30
CSXX-0225	0.48	0.072	1	86.6	0.572	2.50	5.45	9.85
CSXX-0226	0.48	0.072	1.5	54.7	0.819	2.80	6.15	11.05
CSXX-0227	0.48	0.072	2	40	1.066	2.95	6.50	11.70
CSXX-0228	0.6	0.045	0.875	10	0.226	2.05	4.50	8.10
CSXX-0229	0.6	0.045	1	8.7	0.249	2.05	4.50	8.10
CSXX-0230	0.6	0.045	2	4	0.443	2.60	5.75	10.30
CSXX-0231	0.6	0.055	0.625	33.3	0.228	2.10	4.65	8.35
CSXX-0232	0.6	0.055	0.875	22.5	0.29	2.10	4.65	8.35
CSXX-0233	0.6	0.055	1	20	0.317	2.15	4.75	8.55
CSXX-0234	0.6	0.055	1.5	12.5	0.428	2.45	5.40	9.70
CSXX-0235	0.6	0.055	2	9.2	0.542	2.90	6.35	11.40
CSXX-0236	0.6	0.063	0.625	53.3	0.285	2.15	4.70	8.45
CSXX-0237	0.6	0.063	0.875	37.5	0.347	2.15	4.70	8.45
CSXX-0238	0.6	0.063	1	31.7	0.379	2.50	5.45	9.85
CSXX-0239	0.6	0.063	1.25	25	0.457	2.50	5.45	9.85
CSXX-0240	0.6	0.063	1.5	20	0.552	2.55	5.55	9.95
CSXX-0241	0.6	0.072	1	45.8	0.506	2.50	5.50	9.90
CSXX-0242	0.6	0.072	1.25	37.5	0.596	2.80	6.15	11.05
CSXX-0243	0.6	0.072	1.5	30	0.686	2.85	6.30	11.35
CSXX-0244	0.6	0.072	2	21.7	0.939	3.20	7.05	12.70
CSXX-0245	0.72	0.055	0.625	23.9	0.203	2.40	5.30	9.50
CSXX-0246	0.72	0.055	0.75	19.2	0.221	2.40	5.30	9.50
CSXX-0247	0.72	0.055	1.25	11.7	0.304	2.40	5.30	9.50
CSXX-0248	0.72	0.055	2	7.1	0.421	2.70	5.90	10.60
CSXX-0249	0.72	0.055	2.5	5.5	0.516	3.00	6.65	11.90
CSXX-0250	0.72	0.063	0.75	27.5	0.284	2.70	5.90	10.60
CSXX-0251	0.72	0.063	0.875	23.3	0.316	2.70	5.90	10.65
CSXX-0252	0.72	0.063	1	20	0.355	2.45	5.35	9.60
CSXX-0253	0.72	0.063	1.25	15.8	0.441	2.90	6.30	11.35
CSXX-0254	0.72	0.063	2	9.2	0.616	2.90	6.30	11.35
CSXX-0255	0.72	0.063	2.5	7.5	0.736	3.30	7.30	13.10
CSXX-0256	0.72	0.072	1.25	27.5	0.47	2.90	6.35	11.40
CSXX-0257	0.72	0.072	1.75	18.3	0.631	3.05	6.75	12.10
CSXX-0258	0.72	0.072	2	16.7	0.686	3.05	6.75	12.10
CSXX-0259	0.72	0.072	2.25	14.2	0.779	3.65	7.95	14.30
CSXX-0260	0.72	0.072	2.5	12.5	0.869	3.70	8.10	14.55
CSXX-0261	0.72	0.072	3	10.4	1.015	3.25	7.10	12.75
CSXX-0262	0.72	0.072	3.5	8.7	1.15	4.05	8.90	16.00
CSXX-0263	0.845	0.067	1	20.3	0.321	3.55	7.85	14.10
CSXX-0264	0.845	0.067	1.5	12.8	0.423	2.75	6.10	10.90
CSXX-0265	0.845	0.067	2	9.4	0.526	4.15	9.10	16.35
CSXX-0266	0.845	0.067	2.5	7.4	0.628	4.15	9.10	16.35

Wire
Lee Spring®



Go to www.smallparts.com



Super Elastic Nitinol Wire

Nitinol gets its name from its elemental composition and the discovery team who first recognized the potential of this powerful alloy (Nickel/ Titanium / Naval Ordinance Laboratory).

Nitinol alloys have the intriguing ability to recover a preset shape, even after drastic distortion. Composition is typically 55%-56% Nickel and 44%-45% Titanium, but

slight adjustments of this ratio can significantly impact the properties of the material. There are two primary but overlapping categories of Nitinol. The first, known as "SuperElastic", is characterized by extraordinary kink resistance and flexibility. The second category, "Shape Memory" alloys, is valued for the Nitinol's capacity to recover a pre-set shape when heated above its transformation temperature.

Our Nitinol wire is a SuperElastic alloy which can be strained at least eight to ten times more than ordinary spring steel without permanent deformation. It can be rather severely compressed, bent or otherwise distorted, but snaps back to its preset or "trained shape" with considerable force that can be used as work. This impressive "memory" takes advantage of stress-induced martensitic transformation.

This wire's annealed temper has a programmed straight shape, but due to its flexible properties, it can be spooled without effecting a permanent set. A new memory is imparted by restraining the material in exactly the shape required and heating to a temperature above 932°F (500°C) for a minimum of five minutes. The shape will be set upon cooling and will exhibit the same flexibility and resistance to deformation as the original wire. It can be repeatedly retrained to achieve new shapes.

Medical devices and instrumentation are fairly broad areas of use. Prosthetic devices routinely utilize Nitinol alloys. Excellent corrosion resistance and biocompatibility contribute to Nitinol's continued growth in the medical device world.

Specifications: 56% Nickel; 44% Titanium. Straightened / with Annealed Temperature Natural Oxide finish.

Super Elastic Nitinol Wire

Part No.	Dimensions in Inches				
	Diameter	O.D. Tol.	12 Inches	36 Inches	72 Inches
NW-005	0.005	±0.0002	\$4.10	\$6.80	\$11.10
NW-006	0.006	±0.0002	4.45	7.40	11.90
NW-009	0.009	±0.0003	4.85	8.05	12.95
NW-011	0.011	±0.0003	5.55	9.20	15.00
NW-013	0.013	±0.0004	6.10	10.10	16.65
NW-015	0.015	±0.0004	6.60	10.95	18.00
NW-019	0.019	±0.0004	7.45	12.40	19.75
NW-026	0.026	±0.0005	-	17.95	28.65
NW-028	0.028	±0.0005	-	20.60	32.90
NW-035	0.035	±0.0008	-	28.40	45.45
NW-040	0.040	±0.0008	-	32.55	52.10
NW-045	0.045	±0.0008	-	41.45	66.30
NW-050	0.050	±0.0010	-	49.40	79.05
NW-055	0.055	±0.0010	-	56.65	90.60
NW-062	0.062	±0.0010	-	71.45	114.30

Aluminum Wire

Aluminum Type 1100 - Straight, work hardened, tempered. This non-heat treatable alloy 1100 aluminum, is used for heat exchanger fins, decorative parts and trims. We provide this alloy in lightweight wire form for general purpose use. They are easily soldered and brazed. These hard-to-find small diameter wires come in 12" and 36" straight lengths.

Aluminum Wire Type 1100

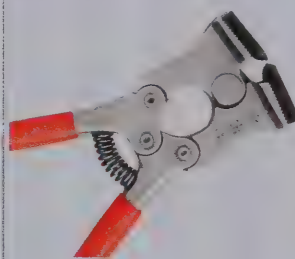
Part No.	Dimensions in Inches Diameter	Price Per Package					
		12 Inch Length			36 Inch Length		
		Each	03	06	Each	03	06
ZWA-0-12	0.032	\$1.75	\$4.75	\$8.40	-	-	-
ZWA-1-36	0.062	-	-	-	2.00	5.35	9.50
ZWA-1-1/2-36	0.094	-	-	-	2.25	6.25	11.15

Straight Brass Wire Type C260

Greater strength and stiffness than copper wire, this C260 brass wire is still malleable and easy to shape. It exhibits good corrosion resistance, and can be easily soldered, brazed and plated. This wire is available in nine hard-to-find small diameters, and comes in 36" straight lengths.

Straight Brass Wire Type C260

Part No.	Dimension in Inches Diameter	Price Per Package 36 Inches Lengths		
		Each	03	06
BW-012	0.012	\$2.30	\$6.15	\$10.95
BW-016	0.016	2.50	6.75	12.00
BW-020	0.020	1.55	4.15	7.35
BW-025	0.025	1.85	4.95	8.75
BW-032	0.032	1.55	4.15	7.35
BW-040	0.040	1.65	4.45	7.90
BW-045	0.045	1.55	4.15	7.35
BW-050	0.050	1.65	4.45	7.90
BW-055	0.055	1.75	4.75	8.40



Starrett® Cut Nippers Adjustable Jaw

These nippers have a powerful compound leverage of 25:1 for cutting through music wire - a process that will damage most other jaw types. Jaw tips are made with tungsten carbide for extra-long life. The jaws are detachable and may be reground and adjusted. Length 5". Cuts up to 3/32".

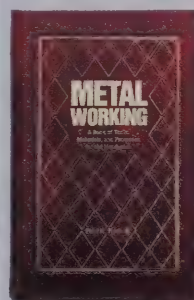
AJCN-1	Cut Nipper	\$145.00
AJCN-JTC	Replacement Jaws	\$60.65



Shear Music Wire

Self-adjusting clamping fixture holds the material being cut perpendicular to the cutter jaws, increasing the precision of the cut as well as the cutting capacity. Cuts music wire to 0.060".

XMS-2193F	2.15"×4.5"	\$29.75
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Metalworking

A book of Tools, Materials and Processes for the Handyman

by Paul N. Hasluck

This 1907 edition of Metalworking covers almost anything you would want to do to a chunk of metal! Topics include everything from foundry work to surfacing and polishing metals, with lots of information about tools; machining; materials; equipment metal treatments and processing; making jewelry; building furnaces, engines and boilers; and even making your own microscope! Very thorough, with 2,206 illustrations.

Reprinted by Lindsay Publications

Hardcover

760 pages

6" x 9 1/4".

REF-MET	\$29.95
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Weller® - ColdHeat™ Soldering Tools

CHT100 Tool:

The CHT100 cordless soldering tool, using the patented ColdHeat™ system, melts solder instantly and is cool to the touch in just seconds. But unlike most other tools using this new technology, the Weller Pro cordless has the punch industrial professionals need to tin wire as large as 12 gauge or join wire from 18-25 gauge. With just five AA alkaline batteries, it has an average yield of 700 solder joints!

CHT1 Bevel Tip:

Bevel tip, 50° angle. The sharp end is for working on electronic components, printed circuit boards, and fine wiring (21-25 gauge). The flat face can be used where more heat transfer is needed; electrical components, small metal pieces and larger wiring (18-20 gauge).

CHT2 Conical Tip:

Conical tip, 61° angle. Ideal for working on electronic components, printed circuit boards, and fine wiring (21-25 gauge).

CHT3 Chisel Tip:

Chisel tip, 61° angle. Ideal for working on electrical components, small metal pieces and larger wiring (12-18 gauge).

Weller® ColdHeat™ Soldering Tools

Part No.	Description	Price
WST-CHT100	ColdHeat™ Cordless Soldering Tool; includes CHT3 chisel tip, protective cap and storage case	\$28.27
WST-CHT1	ColdHeat™ Soldering Tip - Bevel	9.47
WST-CHT2	ColdHeat™ Soldering Tip - Conical	9.47
WST-CHT3	ColdHeat™ Soldering Tip - Chisel	9.47

Brazing & Soldering Materials

Common Wire Solders — Harris

For soldering, tin/lead solders are the most widely used type. These solders are suitable in most cases for copper, most copper alloys, lead, high nickel alloys, and steel. Use with Stay-Clean soldering flux except for electronic and electrical applications where the 50/50 Rosin Core listed below is recommended. Sold in 1 pound spools.

Common Wire Solders

Part No.	Wire Diameter	Chemical Composition Description	Melting Temp.	1 lb. Spool
		50% Tin, 50% Lead	360°-460°F	
SO-CS55	1/8"	The most popular general purpose solder.	(182°-273°C)	\$15.25
	1/16"	50% Tin, 50% Lead, Rosin Core	360°-420°F	
SO-CSR55		Recommended for light electrical wiring.	(182°-215°C)	17.95

Stay-Brite Tin/Silver Solder and Flux Kit

Versatile and non toxic, this solder offers low cost, great strength and low working temperature. It has excellent affinity to bond with most brass, copper, steel and stainless steel alloys. Provides higher than necessary elongation for sound dissimilar metal joints and vibration applications. Provides approximately five times the strength of ordinary tin/lead solders. Finished joint color: Bright Silver.

Kit includes: ½ oz. solder (3/64" dia. wire) and ½ oz. flux. Packaged in a re-sealable container. Composition 96% Tin, 4% Silver. Melting Point 430°F (221°C)

Note: We recommend this low temperature solder for most miniature profiles.

SO-SBK \$9.00

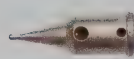
Weller Portasol® P2C Butane Soldering Iron

- Self igniting, cordless, lightweight butane soldering iron
- Piezo push button ignition for ease and convenience
- Fast heat-up for high productivity, melts solder in less than 40 seconds
- Gas capacity allows up to 1 hour continuous use.
- Refills in less than 20 seconds so you can stay on the job
- 25 watts to 75 watts

Portasol® is a registered trademark of Olgesby and Butler Ltd.



WST-P2C

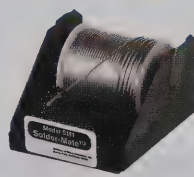


WST-PPT5

Weller® Cordless Butane Soldering Iron

Part No.	Description	Price
WST-P2C	Portasol® Professional Self-igniting Cordless Butane Solder Iron. Push button ease 25W-75W. Gas capacity for up to 1 hour continuous use.	\$29.76
WST-P2KC	Portasol® Professional Self-igniting Cordless Butane Solder Kit. Includes - P2C iron, 4 tips, sponge, tray and storage case.	47.81
WST-PPT2	.094" Single Flat Tip for P2C and P2KC Portasol® Butane Soldering Irons	7.17
WST-PPT5	.031" Double Flat Tip for P2C and P2KC Portasol® Butane Soldering Irons	7.17
WST-PPT6	.094" Double Flat Tip for P2C and P2KC Portasol® Butane Soldering Irons	7.17

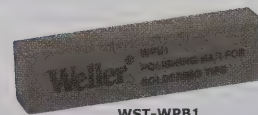
Weller® Soldering Accessories



WST-SM1



WST-FD2



WST-WPB1

Weller® Soldering Accessories

Part No.	Description	Price
WST-SM1	Solder-Mate™ Dispenser. Provides continuous, convenient feeds. Minimizes core solder usage. Holds 1 pound solder spool (not included)	\$8.56
WST-7880	Manual Desoldering pump. Powerful, spring-loaded vacuum. Design includes cushioned plunger, easy thumb activation. Heat resistant Teflon² tips.	20.54
WST-FD2	Flux Solvent Dispenser w/ .020" stainless needle. Avoid spills by placing flux precisely where needed. Squeeze bottle dispenses 1 drop of liquid	2.56
WST-WPB1	Polishing Bar for Tips. Cleans/renews soldering tips by removing plastic resins, oxidation, silicone grease and other chemicals. Re-tin tip after use.	7.39

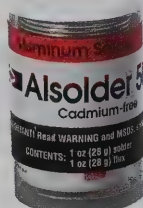
² Teflon is a Registered Trademark of DuPont

Alsolder 500 Aluminum Solder and Flux Kit

Kit includes: 1 oz. solder, (1/16" dia. wire) and 1 oz. flux.

Finished joint color: Silver. Packaged in a re-sealable container. Composition 85% Tin, 15% Zinc. Melting Range 482°F (250°C)

SO-AS5K \$22.00



Battery Powered Soldering Iron

- Heats up to working temperature in under 15 seconds
- Red LED indicates when power is on
- Protective safety cap turns off power when placed on tool
- Over 120 intermittent solder joints with fresh batteries
- Perfect for field service repair on small parts and components
- Includes iron, tip, 3 AA batteries, lead free solder, and tip wrench



WST-BP645MP

Professional Soldering Iron

- Ideal for a wide variety of electronic tasks, has ST3 soldering tip
- Uses ST series long life double-coated iron-plated tips
- Tip temperature: 800°F
- Quick change knurled collar, stainless steel barrel
- Light blue with cushion grip handle and plug-in heating element
- 6' 3-wire cord, iron is 7-7/8" long
- IMPORTANT: Use only Weller® tips
- UL and cUL listed (120 VAC units only)



WST-WP30

Marksman Series Soldering Irons

- New indicator light allows you to instantly see that the iron is on
- Good quality consumer iron
- Featherweight iron with pencil handle
- Ideal for hobbies, kits, radios, stained glass, minor repairs and electronics work
- Includes replaceable nickel-plated copper tip
- Stainless steel barrel and heat and impact resistant handle
- IMPORTANT: Use only Weller® tips
- UL listed - cUL version available



WST-SP23L

Therma-Boost Heat Tool

- For a wide variety of jobs including soldering, cutting, and shaping
- Therma-Boost trigger gives you added bursts of power when you need it
- 2 lights on the back of tool indicate standard or Therma-Boost modes
- Heats up to working temperature in just 45 seconds
- For continuous use. Therma-Boost mode can be used intermittently
- Ultra-lightweight - weighs just 3 oz.
- Tips are for soldering, rope and foam cutting, smoothing, and scoring
- Tip changes are fast and easy
- Kit includes heat tool, stand, 6 multi-use tips, and instructions
- UL and cUL listed



WST-TB100PK

Short Barrel Wood-burning Kit

- Fine quality consumer mini iron
- Featherweight iron with pencil handle
- Ideal for wood burning, hobbies and crafts
- Also ideal for jewelry, model railroads, and micro electronics
- Develops 900°F/480°C temperature
- Stainless steel barrel, heat and impact resistant handle
- Kit contains 9 woodburning tips, embossing tip, hot knife, and stand
- Includes complete project booklet
- UL and cUL listed



WST-WSB25WB

40 Watt Soldering Station

- On/off switch with "power-on" indicator light
- Variable power control produces 5-40 watts
- Quality lightweight pencil iron
- Cushioned foam grip with replaceable heating element
- Ideal for hobbyist, DIY'ers and students
- Safety guard iron holder
- Natural sponge tip cleaning pad
- Includes ST3 iron plated copper tip
- UL listed, cUL version available



WST-WLC-100

Weller® Irons & Guns for light industrial use and the serious hobbyist

Part No.	Description	Price
WST-BP645MP	Cordless, fast heat 6 watt/4.5 volt soldering iron. Heats up in under 15 seconds, red LED indicates power is on. Requires 3 AA batteries	\$13.32
WST-SP23L	Marksman® Iron (25 Watt). Develops 750°F. Ideal for hobbies, kits, radios, and electronics work	11.93
WST-SP40L	Marksman® Iron (40 Watt). Develops 900°F. Ideal for hobbies	15.96
WST-SP80L	Marksman® Iron (80 Watt). Develops 900°F. Ideal for hobby work, stained glass and minor repairs	25.67
WST-WP30	Professional Soldering Iron, 30 Watts, 120v, 800°F 3-wire Cord. Cushion Grip for comfort. Ideal for a wide variety of electronic tasks.	34.57
WST-WLC100	Soldering Station for Hobbyist and DIYer. Variable power control produces 5-40 watts.	47.13
WST-TB100PK	Therma-Boost heat tool, 30W-130W, 120V. Ideal for soldering, foam cutting, scoring	17.77
WST-WSB25WB	Therma Boost provides added burst of power when needed.	
	Wood Burning Kit. Short Barrel with 13 pieces. Ideal for the serious woodworker.	16.00

Soldering Gun Kit Heavy Duty

This professional quality soldering gun kit quickly delivers both high and low tip temperatures, but it is heavy duty enough for many big jobs. The pre-tinned copper tip reaches soldering temperature in approximately six seconds. The dual heat gun produces 260 or 200 watts and features trigger-select heat control, a pistol grip and two built-in work lights. Hefty gun with solid feel weighs 1 lb. 6 oz. 120V, 50/60 Hz.

Kit includes a soldering gun in a durable plastic carrying case, 1 Soldering Tip, 1 Smoothing Tip, 1 Cutting Tip, flux brush, soldering aid tool and a coil of lead-free solder. Replacement tips available.

SI-GK	\$75.00
SI-GK-CUT	Cutting Tip 5.00
SI-GK-SOT	Soldering Tip 5.00
SI-GK-SMT	Smoothing Tip 5.00

Soldering Iron Pencil Type

Use the pencil type soldering iron for your light duty soldering projects. It takes only about two minutes to reach soldering temperature (970°F [521°C] maximum tip temperature) and is especially suited for soldering miniature and small electrical connections, printed circuit board work and integrated circuits.

Element is nickel-chrome wound on stainless steel spool, mica insulated; stainless steel casing; minlon handle; clear butyrate finger grip. Plug-type chisel point tip. 3 wire cordset, grounded, type HPN standard. 100-120V AC 60 Hz, 30 watts. Other tips and a stand are also available.

SI-LD	2 oz., 7 1/2" long (including tip)	\$58.95
SI-LD-CPT	Replacement Chisel Point Tip	10.50
SI-LD-DPT	Diamond Point Tip	12.60
SI-LD-RPT	Flat Tip	12.60
SI-LDS	Stand	8.40



Miniature Welding Torch

Thread-Thin flames for welding, brazing, soldering and heating

Its size is perfect for easy manipulation when performing intricate tasks.

The rugged aluminum body is just 6" long, 1/2" in diameter, and weighs only 1.5 ounces. It produces a controlled, stable flame that is easy to adjust and can deliver thread-thin flames up to 6300°F (3482°C), hot enough to melt metals, glass and ceramics. It will weld an almost limitless range of metals — from less than 0.001" copper to 18-gauge steel, and it brazes and solders even the tiniest wires and filaments with ease and versatility. The seven-piece kit includes two preset regulators for Oxygen, Propane, MAPP, and Propylene based fuel gases: a size 4 Curved Tip; two six-foot hose assemblies, color coded for oxygen and fuel gas lines, plus a tank rest and an instruction booklet for use/safety. (Gas cylinders are not included).

TOR-60M Torch Kit.....\$209.95

Other Accessories:

TOR-6XT3 3" Tip Extension\$38.40

TOR-6XT6 6" Tip Extension\$38.40

TOR-63 Curved Tip - Size 3 (.011" orifice)\$20.00

TOR-64 Curved Tip - Size 4 (.020" orifice)\$20.00

TOR-65 Curved Tip - Size 5 (.029" orifice)\$20.00

TOR-66 Curved Tip - Size 6 (.037" orifice)\$20.00

" When precise application of heat is required, this little torch goes where conventional torches just can't reach."

Blazer® Micro Torch

Just press the ignition button and the Blazer® micro torch fires up with an instant flame that endures for up to two hours, depending on the size flame used. The adjustable gas volume delivers a fixed or variable flame with a maximum length of approximately 100mm. Needle valves control temperature settings up to 2350°F (1288°C). Shipped unfilled, this hand torch has a tank capacity of 1.58 fluid ounces and uses most multiple head butane gas lighter refills.

Equipped with a removable stand for hands-free operation, the 1-3/8" diameter tank is made of non-corrosive chrome plated brass, and is cushioned with a grid patterned rubber grip for firmness, safety, and ease of handling.

A handy tool for small wire work, jewelry making, workshop, wood graining, vinyl tile laying, removing old paint, bending glass, plastic, metal tubing, thawing frozen locks, bolts, sweating and thawing light pipe, ski waxing and for camping chores. Overall height: 5-1/2".

TOR-2L Micro Torch, Unfilled.....\$65.00

Safety-Silv®

This group of high quality silver brazing alloys is nontoxic and cadmium free, completely eliminating the danger of poisoning caused by cadmium oxide fumes. Safety-Silv® alloys are for use with both ferrous and nonferrous materials.

• Safety-Silv® 1200

This very high quality silver brazing alloy is free flowing with unequalled capillary attraction, deep penetration, high ductility and very high corrosion resistance. Use with Harris Stay-Silv® flux, white or black.

• Safety-Silv® 1375

This low temperature, low silver content, cadmium free brazing alloy with a medium plastic range is suitable for use on steel, copper and most brasses. Use with Harris Stay-Silv® flux, white or black.

• Safety-Silv® 1410

This alloy has high strength and ductility. It flows in a sluggish manner making it especially good for loose fits and fillet forming. It requires additional heat and careful attention to insure optimum results. Use with Stay-Silv® flux, white or black.

Specifications

Harris Alloy	Chemical Composition %				Melting Range °F/°C		Color of Brazed Joint
	Silver	Copper	Zinc	Tin	Solid	Liquid	
1200	56	22	17	5	1145/618	1200/648	Bright Silver
1375	25	43	30	2	1265/685	1430/777	Brassy Yellow
1410	30	38	32	0	1250/677	1410/765	Yellow

Safety-Silv®

Part No.	Safety Silv® Alloy	Package Type	Dimensions in Inches		Price Each
			Wire Dia.	Approx. Length	
SO-SS1200/032	#1200	Coil - 1 oz.* Wire	1/32	260	\$30.25
SO-SS1200/062	#1200	Coil - 1 oz.* Wire	1/16	65	28.75
SO-SS1375/062	#1375	Coil - 1 oz.* Wire	1/16	65	18.95
SO-SS1410/062	#1410	Coil - 1 oz.* Wire	1/16	65	19.95
SO-SSK1200	#1200	Kit - 1 oz.** Wire, 1.75 oz. white Flux	1/16	58	36.15
SO-SSK1410	Safety Silv 45	1 oz.** Wire, 1.75 oz. white Flux	1/16	58	21.65

*troy, ** avoirdupois, So-SK24, SO-SK44 only

Soldering

Micro Torch • Solder And Flux Kit • Safety Silv®



Work Holding Tools

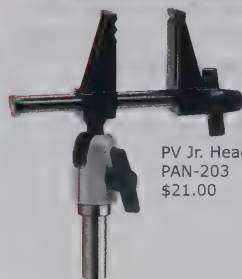
Order what you need and add on later

PANA VISE®

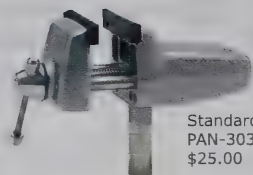
PanaVise® Products, Inc. designs, develops and manufactures some of the most innovative, well built work holding fixtures available. We believe offering their unique component system of interchangeable heads, bases, and base mounts will allow you to create a custom made holding tool for your specific needs. All PanaVise® bases include the patented "split ball" which allows the head to be positioned through three planes (90° tilt, 360° turn and 360° rotation). All 300 series bases accept all 300 series heads. They are used extensively in the electronics, lapidary, watch repair, hobby world, and are a must for product development labs.



PV Jr. Head
PAN-203
\$21.00



Standard Head
PAN-303
\$25.00



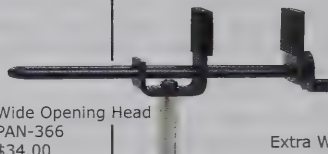
Circuit Board Holder
PAN-315
\$33.00



Low-Profile Head
PAN-304
\$33.00



Fixturing Head
PAN-337
\$19.00



Wide Opening Head
PAN-366
\$34.00



Extra Wide Opening Head
PAN-376
\$46.00



Micrometer Holder
PAN-385
\$21.00

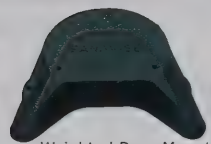
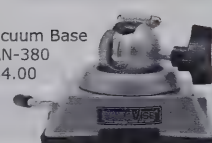
Low-Profile Base
PAN-305
\$21.00



Standard Base
PAN-300
\$21.00



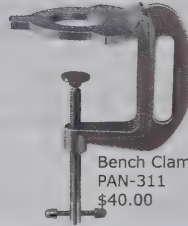
Vacuum Base
PAN-380
\$34.00



Weighted Base Mount
PAN-308
\$30.00



Surface Plate - Base Mount
PAN-310
\$95.00



Bench Clamp - Base Mount
PAN-311
\$40.00



Parts Tray - Base Mount
PAN-312
\$20.00



Magnetic - Base Mount
PAN-335
\$19.00

Vise Accessories

Interchangeable Jaws

Fits Standard and Low-Profile Heads



Nylon Jaws

Type 6/6 Nylon jaws offer excellent electrical insulation and gentle holding power. Continuous heat tolerance to 200°F (93°C), intermittent heat to 300°F (149°C).

PAN-343 (Pair) \$2.80



Grooved Nylon Jaws

Same heat properties as Nylon jaws PAN-343 but with thin horizontal grooves, perfect for holding small tubes, rods, or small circuit boards firmly in place.

PAN-344 (Pair) \$3.80



Teflon® Jaws

Recommended for high heat applications; won't scratch or mar delicate pieces. Continuous heat tolerance to 500°F (260°C).

PAN-352 (Pair) \$12.00



Go to www.smallparts.com

For Interchangeable Jaws, Noeprene Jaw Pads, and other accessories.

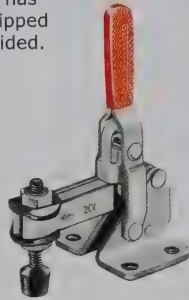
DE-STACO Hold Down Clamps

Hold Down Clamps provide instant holding pressure for a variety of shop production needs. Compact toggle clamps can be installed on jigs, tool fixtures or movable bases so they can be quickly set and engaged to hold your work.

Vertical handle hold-down clamp with flanged base has a U-shaped hold down bar with bonded neoprene tipped 10-32 spindle. Flanged washers and lock nuts provided. Handle moves 56°, bar moves 100°.

Material Stainless Steel 18-8
Holding Capacity 100 lbs. maximum
Overall Width 1-5/16"
Overall Height 3"
Overall Length 2-1/8"
Clamping Height 0"-5/8"
Weight 2 oz

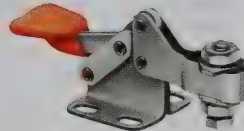
DSC-201 \$21.50



Provides good clearance height under the bar while maintaining a low profile. Stainless steel construction including spindle. Flanged base. Handle moves 45°, bar moves 90°.

Material Stainless Steel 18-8
Holding Capacity 100 lbs
Overall Width 15/16"
Overall Height 1- 9/32"
Overall Length 2-3/4"
Clamping Height 0" - 7/16"

DSC-206 \$18.60



A low silhouette hold-down clamp features a handle that can be operated from either side or from behind. This compact unit provides considerable holding capacity in a small size. Handle moves 175°, bar moves 92°.

Material Stainless Steel 18-8
Holding Capacity 150 lbs
Overall Width 1"
Overall Height 1-3/8"
Overall Length 2-1/4"
Clamping Height 0"-1/2"

DSC-305 \$19.15



The pull action of this stainless steel clamp makes it a useful tool for many latching operations. Threaded pull bar for convenient adjustment.

Material Stainless Steel 18-8
Holding Capacity 375 lbs. maximum
Overall Width 1-15/16"
Overall Height 8-5/8"
Weight 12 oz
Drawing Movement 4"

DSC-351 \$22.50



A straight-line toggle clamp is handy for electronic applications and similar small fixturing. Provided with an 8-32 nylon spindle.

Material Stainless Steel 18-8
Holding Capacity 100 Lbs
Overall Width 1-1/16"
Overall Height 1-1/4"
Overall Length 2-19/32"
Plunger travel 5/8"

DSC-601 \$19.95



Vertical-handle stainless steel hold down clamp with flanged base and neoprene 1/4-20 spindle. Handle moves 69°, bar moves 117°.

Material Stainless Steel 18-8
Holding Capacity 200 lbs. maximum
Overall Width 1-9/16"
Overall Height 3-3/4"
Overall Length 2-3/8"
Clamping Height 15/16"
Weight 5-1/2 oz

DSC-202 \$24.50



Horizontal hold-down clamp is supplied with nylon spindle assembly and a flanged base. Solid holding bar. Handle moves 80°, bar moves 90°.

Material Stainless Steel 18-8
Holding Capacity 60 lbs
Overall Width 15/16"
Overall Height 3/4"
Overall Length 2-3/4"
Clamping Height 0" - 13/32"
Weight 1 oz

DSC-205 \$16.50



The over-center toggle locking action of this stainless steel clamp provides well defined exertion against heavy forces. Threaded U-bolts permit easy adjustment.

Material Stainless Steel 18-8
Holding Capacity 60 lbs. maximum
Overall Width 1-7/64"
Overall Height 1-5/32"
Overall Length 3-15/32"
Drawing Movement 1-3/16"
Weight 2.5 oz

DSC-323 \$27.55



This forged alloy steel squeeze action clamp has two adjustable 1/4-20 thread spindles to permit additional versatility.

Material Carbon Steel C-1040
Holding Capacity 200 lbs. maximum
Overall Width 1/2"
Overall Height 1-15/16"
Overall Length 4-1/2"
Weight 5 oz

DSC-424 \$19.10



This Toggle-Lock Plus T clamp has a release lever catch which allows the clamp to lock in the closed position only, giving it extra holding capacity.

Material Zinc Plated Steel C-1008
Holding Capacity 700 lbs. maximum
Overall Width 1-39/64"
Overall Height 1-5/8"
Overall Length 5-5/8"
Weight 9 oz
Drawing Movement 2"
Adjustment 11/64"

DSC-331 \$29.95



Go to www.smallparts.com

For More Sizes and Styles.

Tools

De-Sta-Co Clamps



118° High Speed Steel Jobber Length Drills

We stock a complete range of top industrial quality jobbers length Drills, in all wire gauges, fractional and letter sizes from No. 97 (0.0059") through 1/2" (0.5000"). Both decimal and millimeter diameters are shown.

118° High Speed Steel Drills

Part No.	Diameter			Approx. Length in In.		Each	10
	Size	Inches	mm	Overall	Flute		
HSD-97	97	0.006	0.150	3/4	0.05	\$6.84	\$58.20
HSD-96	96	0.006	0.160	3/4	0.05	6.84	58.20
HSD-95	95	0.007	0.170	3/4	0.05	6.20	52.72
HSD-94	94	0.007	0.180	3/4	0.06	6.20	52.72
HSD-93	93	0.008	0.191	3/4	0.06	5.00	42.52
HSD-92	92	0.008	0.201	3/4	0.06	5.00	42.52
HSD-91	91	0.008	0.211	3/4	0.07	5.00	42.52
HSD-90	90	0.009	0.221	3/4	0.07	5.00	42.52
HSD-89	89	0.009	0.231	3/4	0.07	5.00	42.52
HSD-88	88	0.010	0.241	3/4	0.08	5.00	42.52
HSD-87	87	0.010	0.254	3/4	0.08	3.72	31.64
HSD-86	86	0.011	0.267	3/4	0.09	3.72	31.64
HSD-85	85	0.011	0.279	3/4	0.09	3.28	27.88
HSD-84	84	0.012	0.292	3/4	0.10	3.28	27.88
HSD-83	83	0.012	0.305	3/4	0.10	3.28	27.88
HSD-82	82	0.013	0.318	3/4	0.10	3.04	25.84
HSD-81	81	0.013	0.330	3/4	0.10	3.04	25.84
HSD-80	80	0.014	0.343	3/4	3/16	1.52	12.92
HSD-79	79	0.015	0.368	3/4	3/16	1.52	12.92
HSD-1/64	1/64"	0.016	0.396	3/4	3/16	1.20	10.20
HSD-78	78	0.016	0.406	7/8	3/16	1.52	12.92
HSD-77	77	0.018	0.457	7/8	3/16	1.52	12.92
HSD-76	76	0.020	0.508	7/8	3/16	1.52	12.92
HSD-75	75	0.021	0.533	1	1/4	1.52	12.92
HSD-74	74	0.023	0.572	1	1/4	1.40	11.92
HSD-73	73	0.024	0.610	1-1/8	5/16	1.40	11.92
HSD-72	72	0.025	0.635	1-1/8	5/16	1.40	11.92
HSD-71	71	0.026	0.660	1-1/4	3/8	1.40	11.92
HSD-70	70	0.028	0.711	1-1/4	3/8	1.40	11.92
HSD-69	69	0.029	0.742	1-3/8	1/2	1.40	11.92
HSD-68	68	0.031	0.787	1-3/8	1/2	1.12	9.52
HSD-1/32	1/32"	0.031	0.793	1-3/8	1/2	1.12	9.52
HSD-67	67	0.032	0.813	1-3/8	1/2	1.12	9.52
HSD-66	66	0.033	0.838	1-3/8	1/2	1.12	9.52
HSD-65	65	0.035	0.889	1-1/2	5/8	1.12	9.52
HSD-64	64	0.036	0.914	1-1/2	5/8	1.12	9.52
HSD-63	63	0.037	0.940	1-1/2	5/8	1.12	9.52
HSD-62	62	0.038	0.965	1-1/2	5/8	1.12	9.52
HSD-61	61	0.039	0.991	1-5/8	11/16	1.12	9.52
HSD-60	60	0.040	1.016	1-5/8	11/16	1.12	9.52
HSD-59	59	0.041	1.041	1-5/8	11/16	1.08	9.20
HSD-58	58	0.042	1.067	1-5/8	11/16	1.04	9.00
HSD-57	57	0.043	1.092	1-3/4	3/4	1.04	9.00
HSD-56	56	0.047	1.181	1-3/4	3/4	1.04	9.00
HSD-3/64	3/64"	0.047	1.191	1-3/4	3/4	1.04	9.00
HSD-55	55	0.052	1.321	1-7/8	7/8	1.04	9.00
HSD-54	54	0.055	1.397	1-7/8	7/8	1.00	8.52
HSD-53	53	0.060	1.511	1-7/8	7/8	1.00	8.52
HSD-1/16	1/16"	0.063	1.588	1-7/8	7/8	1.00	8.52
HSD-52	52	0.064	1.613	1-7/8	7/8	1.00	8.52
HSD-51	51	0.067	1.702	2	1	1.00	8.52
HSD-50	50	0.070	1.778	2	1	1.00	8.52
HSD-49	49	0.073	1.877	2	1	1.00	8.52
HSD-48	48	0.076	1.930	2	1	1.00	8.52
HSD-5/64	5/64"	0.078	1.984	2	1	1.00	8.52
HSD-47	47	0.079	1.994	2	1	1.00	8.52
HSD-46	46	0.081	2.057	2-1/8	1-1/8	1.00	8.52
HSD-45	45	0.082	2.083	2-1/8	1-1/8	1.00	8.52
HSD-44	44	0.086	2.184	2-1/8	1-1/8	1.00	8.52
HSD-43	43	0.089	2.261	2-1/4	1-1/4	1.00	8.52
HSD-42	42	0.094	2.375	2-1/4	1-1/4	1.00	8.52
HSD-3/32	3/32"	0.094	2.383	2-1/4	1-1/4	1.00	8.52
HSD-41	41	0.096	2.438	2-3/8	1-3/8	1.00	8.52
HSD-40	40	0.098	2.489	2-3/8	1-3/8	1.00	8.52
HSD-39	39	0.100	2.527	2-3/8	1-3/8	1.00	8.52

118° High Speed Steel Drills

Part No.	Diameter			Approx. Length in In.		Each	10
	Size	Inches	mm	Overall	Flute		
HSD-38	38	0.102	2.578	2-1/2	1-7/16	\$1.00	\$8.52
HSD-37	37	0.104	2.642	2-1/2	1-7/16	1.00	8.52
HSD-36	36	0.107	2.705	2-1/2	1-7/16	1.00	8.52
HSD-7/64	7/64"	0.109	2.779	2-5/8	1-1/2	1.00	8.52
HSD-35	35	0.110	2.794	2-5/8	1-1/2	1.00	8.52
HSD-34	34	0.111	2.819	2-5/8	1-1/2	1.00	8.52
HSD-33	33	0.113	2.870	2-5/8	1-1/2	1.00	8.52
HSD-32	32	0.116	2.946	2-5/8	1-1/2	1.00	8.52
HSD-31	31	0.120	3.048	2-3/4	1-5/8	1.00	8.52
HSD-1/8	1/8	0.125	3.175	2-3/4	1-5/8	1.04	9.00
HSD-30	30	0.129	3.264	2-3/4	1-5/8	1.04	9.00
HSD-29	29	0.136	3.454	2-7/8	1-3/4	1.04	9.00
HSD-28	28	0.141	3.569	2-7/8	1-3/4	1.04	9.00
HSD-9/64	9/64"	0.141	3.571	2-7/8	1-3/4	1.04	9.00
HSD-27	27	0.144	3.658	3	1-7/8	1.04	9.00
HSD-26	26	0.147	3.734	3	1-7/8	1.08	9.20
HSD-25	25	0.150	3.797	3	1-7/8	1.08	9.20
HSD-24	24	0.152	3.861	3-1/8	2	1.08	9.20
HSD-23	23	0.154	3.912	3-1/8	2	1.08	9.20
HSD-5/32	5/32"	0.156	3.968	3-1/8	2	1.08	9.20
HSD-22	22	0.157	3.998	3-1/8	2	1.20	10.20
HSD-21	21	0.159	4.039	3-1/4	2-1/8	1.20	10.20
HSD-20	20	0.161	4.089	3-1/4	2-1/8	1.20	10.20
HSD-19	19	0.166	4.216	3-1/4	2-1/8	1.20	10.20
HSD-18	18	0.170	4.305	3-1/4	2-1/8	1.20	10.20
HSD-11/64	11/64"	0.172	4.366	3-1/4	2-1/8	1.20	10.20
HSD-17	17	0.173	4.394	3-3/8	2-3/16	1.48	12.60
HSD-16	16	0.177	4.496	3-3/8	2-3/16	1.48	12.60
HSD-15	15	0.180	4.572	3-3/8	2-3/16	1.56	13.40
HSD-14	14	0.182	4.623	3-3/8	2-3/16	1.56	13.40
HSD-13	13	0.185	4.699	3-1/2	2-5/16	1.56	13.40
HSD-3/16	3/16"	0.188	4.763	3-1/2	2-5/16	1.48	13.40
HSD-12	12	0.189	4.801	3-1/2	2-5/16	1.56	13.40
HSD-11	11	0.191	4.851	3-1/2	2-5/16	1.56	13.40
HSD-10	10	0.194	4.915	3-5/8	2-7/16	1.64	14.00
HSD-9	9	0.196	4.978	3-5/8	2-7/16	1.64	14.00
HSD-8	8	0.199	5.055	3-5/8	2-7/16	1.64	14.00
HSD-7	7	0.201	5.105	3-5/8	2-7/16	1.64	14.00
HSD-13/64	13/64"	0.203	5.159	3-5/8	2-7/16	1.60	13.80
HSD-6	6	0.204	5.182	3-3/4	2-1/2	2.08	17.80
HSD-5	5	0.206	5.220	3-3/4	2-1/2	2.08	17.80
HSD-4	4	0.209	5.309	3-3/4	2-1/2	2.08	17.80
HSD-3	3	0.213	5.410	3-3/4	2-1/2	2.08	17.80
HSD-7/32	7/32"	0.219	5.558	3-3/4	2-1/2	1.56	13.40
HSD-2	2	0.221	5.613	3-7/8	2-5/8	2.08	17.80
HSD-1	1	0.228	5.791	3-7/8	2-5/8	2.08	17.80
HSD-A	A	0.234	5.944	3-7/8	2-5/8	2.32	19.72
HSD-15/64	15/64"	0.234	5.954	3-7/8	2-5/8	1.76	15.00
HSD-B	B	0.238	6.045	4	2-3/4	2.32	19.72
HSD-C	C	0.242	6.147	4	2-3/4	2.32	19.72
HSD-D	D	0.246	6.248	4	2-3/4	2.32	19.72
HSD-1/4	1/4"	0.250	6.350	4	2-3/4	2.12	18.08
HSD-E	E	0.250	6.350	4	2-3/4	2.36	20.08
HSD-F	F	0.257	6.528	4-1/8	2-7/8	2.88	24.48
HSD-G	G	0.261	6.629	4-1/8	2-7/8	2.88	24.48
HSD-17/64	17/64"	0.266	6.746	4-1/8	2-7/8	2.48	21.08
HSD-H	H	0.266	6.756	4-1/8	2-7/8	2.92	24.88
HSD-I	I	0.272	6.909	4-1/8	2-7/8	3.16	27.00
HSD-J	J	0.277	7.036	4-1/8	2-7/8	3.16	27.00
HSD-K	K	0.281	7.137	4-1/4	2-15/16	3.44	29.24
HSD-9/32	9/32"	0.281	7.143	4-1/4	2-15/16	2.88	24.48
HSD-L	L	0.290	7.366	4-1/4	2-15/16	3.44	29.24
HSD-M	M	0.295	7.493	4-3/8	3-1/16	3.52	29.92
HSD-19/64	19/64"	0.297	7.541	4-3/8	3-1/16	3.00	25.56
HSD-N	N	0.302	7.671	4-3/8	3-1/16	3.60	30.60
HSD-5/16	5/16"	0.313	7.938	4-1/2	3-1/16	3.16	27.00
HSD-O	O	0.316	8.026	4-1/2	3-3/16	3.60	30.60
HSD-P	P	0.323	8.204	4-5/8	3-5/16	4.08	34.68
HSD-21/64	21/64"	0.328	8.334	4-5/8	3-5/16	3.40	28.92
HSD-Q	Q	0.332	8.433	4-3/4	3-7/16	4.16	35.36



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135° Cobalt Drills

135° Cobalt Drills

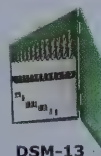
Part No.	Size	Diameter		Length in Inches		Each	10
		Inches	mm	Overall	Flute		
CHSD-80	80	0.014	0.343	3/4	3/16	\$3.60	\$31.00
CHSD-79	79	0.015	0.368	3/4	3/16	3.60	31.00
CHSD-1/64	1/64	0.016	0.396	3/4	3/16	3.85	33.20
CHSD-78	78	0.016	0.406	7/8	3/16	3.60	31.00
CHSD-77	77	0.018	0.457	7/8	3/16	3.60	31.00
CHSD-76	76	0.020	0.508	7/8	3/16	3.60	31.00
CHSD-75	75	0.021	0.533	1	1/4	3.60	31.00
CHSD-74	74	0.023	0.572	1	1/4	3.30	28.50
CHSD-73	73	0.024	0.610	1-1/8	5/16	3.30	28.50
CHSD-72	72	0.025	0.635	1-1/8	5/16	3.30	28.50
CHSD-71	71	0.026	0.660	1-1/4	3/8	3.30	28.50
CHSD-70	70	0.028	0.711	1-1/4	3/8	3.30	28.50
CHSD-69	69	0.029	0.742	1-3/8	1/2	3.30	28.50
CHSD-68	68	0.031	0.787	1-3/8	1/2	2.90	25.00
CHSD-1/32	1/32	0.031	0.793	1-3/8	1/2	3.05	26.35
CHSD-67	67	0.032	0.813	1-3/8	1/2	2.90	25.00
CHSD-66	66	0.033	0.838	1-3/8	1/2	2.90	25.00
CHSD-65	65	0.035	0.889	1-1/2	5/8	3.00	26.00
CHSD-64	64	0.036	0.914	1-1/2	5/8	3.00	26.00
CHSD-63	63	0.037	0.940	1-1/2	5/8	3.00	26.00
CHSD-62	62	0.038	0.965	1-1/2	5/8	3.00	26.00
CHSD-61	61	0.039	0.991	1-5/8	11/16	3.00	26.00
CHSD-60	60	0.040	1.016	1-5/8	11/16	2.70	23.50
CHSD-59	59	0.041	1.041	1-5/8	11/16	2.70	23.50
CHSD-58	58	0.042	1.067	1-5/8	11/16	2.70	23.50
CHSD-57	57	0.043	1.092	1-3/4	3/4	2.70	23.50
CHSD-56	56	0.047	1.181	1-3/4	3/4	2.10	18.15
CHSD-3/64	3/64	0.047	1.191	1-3/4	3/4	2.85	24.60
CHSD-55	55	0.052	1.321	1-7/8	7/8	1.85	16.15
CHSD-54	54	0.055	1.397	1-7/8	7/8	1.85	16.15
CHSD-53	53	0.060	1.511	1-7/8	7/8	1.85	16.15
CHSD-1/16	1/16	0.063	1.588	1-7/8	7/8	1.85	15.90
CHSD-52	52	0.064	1.613	1-7/8	7/8	1.85	16.15
CHSD-51	51	0.067	1.702	2	1	1.85	16.15
CHSD-50	50	0.070	1.778	2	1	1.85	16.15
CHSD-49	49	0.073	1.877	2	1	1.85	16.15
CHSD-48	48	0.076	1.930	2	1	1.85	16.15
CHSD-5/64	5/64	0.078	1.984	2	1	1.85	15.90
CHSD-47	47	0.079	1.994	2	1	1.85	16.15
CHSD-46	46	0.081	2.057	2-1/8	1-1/8	1.85	16.15
CHSD-45	45	0.082	2.083	2-1/8	1-1/8	1.85	16.15
CHSD-44	44	0.086	2.184	2-1/8	1-1/8	1.85	16.15
CHSD-43	43	0.089	2.261	2-1/4	1-1/4	1.85	16.15
CHSD-42	42	0.094	2.375	2-1/4	1-1/4	1.85	16.15
CHSD-3/32	3/32	0.094	2.383	2-1/4	1-1/4	1.85	15.90
CHSD-41	41	0.096	2.438	2-3/8	1-3/8	1.85	16.15
CHSD-40	40	0.098	2.489	2-3/8	1-3/8	1.85	16.15
CHSD-39	39	0.100	2.527	2-3/8	1-3/8	1.85	16.15
CHSD-38	38	0.102	2.578	2-1/2	1-7/16	1.85	16.15
CHSD-37	37	0.104	2.642	2-1/2	1-7/16	2.05	18.00
CHSD-36	36	0.107	2.705	2-1/2	1-7/16	2.05	18.00
CHSD-7/64	7/64	0.109	2.779	2-5/8	1-1/2	1.95	17.00
CHSD-35	35	0.110	2.794	2-5/8	1-1/2	2.05	18.00
CHSD-34	34	0.111	2.189	2-5/8	1-1/2	2.05	18.00
CHSD-33	33	0.113	2.870	2-5/8	1-1/2	2.05	18.00
CHSD-32	32	0.116	2.946	2-5/8	1-1/2	2.05	18.00
CHSD-31	31	0.120	3.048	2-3/4	1-5/8	2.05	18.00
CHSD-1/8	1/8	0.125	3.175	2-3/4	1-5/8	2.35	20.25
CHSD-30	30	0.129	3.264	2-3/4	1-5/8	2.05	18.00
CHSD-29	29	0.136	3.454	2-7/8	1-3/4	2.05	18.00
CHSD-28	28	0.141	3.569	2-7/8	1-3/4	2.05	18.00
CHSD-9/64	9/64	0.141	3.571	2-7/8	1-3/4	2.50	21.60
CHSD-27	27	0.144	3.658	3	1-7/8	2.15	18.50
CHSD-26	26	0.147	3.734	3	1-7/8	2.30	20.00
CHSD-25	25	0.150	3.797	3	1-7/8	2.30	20.00
CHSD-24	24	0.152	3.861	3-1/8	2	2.50	21.50
CHSD-23	23	0.154	3.912	3-1/8	2	2.50	21.50
CHSD-5/32	5/32	0.156	3.968	3-1/8	2	2.65	23.00
CHSD-22	22	0.157	3.398	3-1/8	2	2.50	21.50
CHSD-21	21	0.159	4.039	3-1/4	2-1/8	2.70	23.50
CHSD-20	20	0.161	4.089	3-1/4	2-1/8	2.70	23.50
CHSD-19	19	0.166	4.216	3-1/4	2-1/8	2.70	23.50
CHSD-18	18	0.170	4.305	3-1/4	2-1/8	2.85	24.50

135° Cobalt Drills

Part No.	Size	Diameter		Length in Inches		Each	10
		Inches	mm	Overall	Flute		
CHSD-11/64	11/64	0.172	4.366	3-1/4	2-1/8	\$2.85	\$24.50
CHSD-17	17	0.173	4.394	3-3/8	2-3/16	3.15	27.10
CHSD-16	16	0.177	4.496	3-3/8	2-3/16	3.15	27.10
CHSD-15	15	0.180	4.572	3-3/8	2-3/16	3.45	30.00
CHSD-14	14	0.182	4.623	3-3/8	2-3/16	3.45	30.00
CHSD-13	13	0.185	4.699	3-1/2	2-5/16	3.60	31.00
CHSD-3/16	3/16	0.188	4.763	3-1/2	2-5/16	3.15	27.50
CHSD-12	12	0.189	4.801	3-1/2	2-5/16	3.60	31.00
CHSD-11	11	0.191	4.851	3-1/2	2-5/16	3.60	31.00
CHSD-10	10	0.194	4.915	3-5/8	2-7/16	3.60	31.00
CHSD-09	9	0.196	4.978	3-5/8	2-7/16	3.60	31.00
CHSD-08	8	0.199	5.055	3-5/8	2-7/16	3.60	31.00
CHSD-07	7	0.201	5.105	3-5/8	2-7/16	3.85	33.30
CHSD-13/64	13/64	0.203	5.159	3-5/8	2-7/16	4.10	35.50
CHSD-06	6	0.204	5.182	3-3/4	2-1/2	4.45	38.75
CHSD-05	5	0.206	5.220	3-3/4	2-1/2	4.45	38.75
CHSD-04	4	0.209	5.309	3-3/4	2-1/2	4.45	38.75
CHSD-03	3	0.213	5.410	3-3/4	2-1/2	5.30	46.00
CHSD-7/32	7/32	0.219	5.558	3-3/4	2-1/2	4.35	37.75
CHSD-02	2	0.221	5.613	3-7/8	2-5/8	5.30	46.00
CHSD-01	1	0.228	5.791	3-7/8	2-5/8	5.30	46.00
CHSD-15/64	15/64	0.234	5.954	3-7/8	2-5/8	4.75	41.25
CHSD-1/4	1/4	0.250	6.350	4	2-3/4	5.25	45.60
CHSD-17/64	17/64	0.266	6.746	4-1/8	2-7/8	5.65	49.25
CHSD-9/32	9/32	0.281	7.143	4-1/4	2-15/16	6.10	52.75
CHSD-19/64	19/64	0.297	7.541	4-3/8	3-1/16	7.15	62.00
CHSD-5/16	5/16	0.313	7.938	4-1/2	3-1/16	7.65	66.30
CHSD-21/64	21/64	0.328	8.334	4-5/8	3-5/16	8.30	71.90
CHSD-11/32	11/32	0.344	8.733	4-3/4	3-7/16	9.75	84.50
CHSD-23/64	23/64	0.359	9.129	4-7/8	3-1/2	11.05	95.90
CHSD-3/8	3/8	0.375	9.525	5	3-5/8	11.60	100.80
CHSD-25/64	25/64	0.391	9.921	5-1/8	3-3/4	12.10	105.20
CHSD-13/32	13/32	0.406	10.318	5-1/4	3-7/8	12.85	111.75
CHSD-27/64	27/64	0.422	10.717	5-3/8	3-15/16	13.65	118.75
CHSD-7/16	7/16	0.438	11.113	5-1/2	4-1/16	14.20	123.25
CHSD-29/64	29/64	0.453	11.509	5-5/8	4-3/16	17.10	148.45
CHSD-15/32	15/32	0.469	11.908	5-3/4	4-5/16	17.30	150.50
CHSD-31/64	31/64	0.484	12.304	5-7/8	4-3/8	17.90	155.75
CHSD-1/2	1/2	0.500	12.700	6	4-1/2	18.40	159.75

Drill Sets

Fractional, Numbered, Letter. These 118° Split Point, Bright Jobber Length Drill Sets give you a wide variety of sizes to 1/2". All are carefully ground high speed steel, and each group is packed in a handy metal or plastic case assuring protection and convenience. Replaceable from our stock.

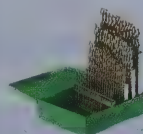


DSM-13

Fractional - 13-Piece Set

1/16" thru 1/4" in 1/64" increments
Hanson drills in a metal index showing size and decimal equivalent for each.

DSM-13.....\$19.50

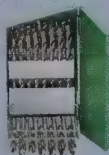


DSM-60

Numbered - 60-Piece Set #1 thru #60

60 standard drills made of carefully ground high speed steel, indexed in a metal case. Each compartment shows number size and decimal equivalent plus tap and body drill sizes for standard machine screws.

DSM-60.....\$75.00



DSM-26

Letter - 26-Piece Set A thru Z

Every letter size drill is included. Stores in a compact steel indexed case.

DSM-26.....\$105.10

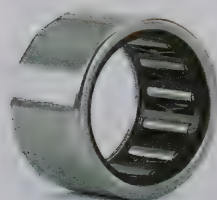
Steel Needle Roller Bearings

A selection of Torrington's general purpose, drawn cup needle roller bearings can be kept on hand for experimental, prototype or model work. Since the needles roll directly on the shaft, a good quality, hardened steel shaft should be used. Lubrication by oil or grease depends on the application. Drawn cup bearings must be pressed into the housing, never hammered. Shaft raceway diameters and housing bores are shown below.



Steel Needle Roller Bearings

Part No	Dimensions in Inches										Each	10
	Bore	O.D.	Width	Raceway Diameter		Housing Bore						
				Max.	Min.	Min.	Max.					
NR-B02/04	1/8	1/4	1/4	0.125	0.125	0.250	0.251	\$13.85	\$115.35			
NR-B03/04	3/16	11/32	1/4	0.188	0.187	0.343	0.344	10.85	90.15			
NR-B03/06	3/16	11/32	3/8	0.188	0.187	0.343	0.344	9.10	75.90			
NR-B04/04	1/4	7/16	1/4	0.250	0.250	0.437	0.438	9.75	81.20			
NR-B04/07	1/4	7/16	7/16	0.250	0.250	0.437	0.438	6.25	52.10			
NR-B05/06	5/16	1/2	3/8	0.313	0.312	0.500	0.501	6.80	56.75			
NR-B05/09	5/16	1/2	9/16	0.313	0.312	0.500	0.501	7.10	59.10			
NR-B06/05	3/8	9/16	5/16	0.375	0.375	0.562	0.563	7.10	59.10			
NR-B06/08	3/8	9/16	1/2	0.375	0.375	0.562	0.563	6.25	52.10			
NR-B08/06	1/2	11/16	3/8	0.500	0.500	0.687	0.688	6.95	57.90			
NR-B08/08	1/2	11/16	1/2	0.500	0.500	0.687	0.688	6.95	57.90			
NR-B08/12	1/2	11/16	3/4	0.500	0.500	0.687	0.688	7.10	59.10			
NR-B10/08	5/8	7/8	1/2	0.625	0.625	0.875	0.876	7.15	60.15			
NR-B10/10	5/8	7/8	3/8	0.625	0.625	0.875	0.876	7.85	65.25			
NR-B10/12	5/8	7/8	3/4	0.625	0.625	0.875	0.876	7.90	65.50			
NR-B12/08	3/4	1	1/2	0.750	0.750	1.000	1.001	7.65	63.55			
NR-B12/10	3/4	1	3/8	0.750	0.750	1.000	1.001	7.95	66.30			
NR-B12/12	3/4	1	3/4	0.750	0.750	1.000	1.001	8.70	72.25			



Steel Roller Clutches

The drawn cup roller clutch transmits torque between the shaft and the housing in one direction and allows free overrun in the opposite direction. When transmitting torque either the shaft or the housing can be the input member. The patented design utilizes the same small size as drawn cup needle roller bearings. Units operate directly on a hardened shaft and are easily mounted with a light press fit into the housing or may be held in place with loctite.

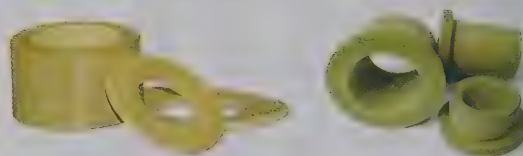
Steel Roller Clutches

Dimensions in Inches										
Part No.	Bore	O.D.	Width	Raceway Diameter		Housing Bore		Each	10	
				Max.	Min.	Min.	Max.			
NR-RC02	1/8	9/32	1/4	0.125	0.125	0.281	0.282	\$12.85	\$106.95	
NR-RC04	1/4	7/16	1/2	0.250	0.250	0.437	0.438	10.05	82.25	
NR-RC06	3/8	5/8	1/2	0.375	0.375	0.625	0.626	10.15	84.30	
NR-RC08	1/2	3/4	1/2	0.500	0.500	0.750	0.751	10.30	85.70	
NR-RC10	5/8	7/8	5/8	0.625	0.625	0.875	0.876	10.95	91.55	
NR-RC12	3/4	1	5/8	0.750	0.750	1.000	1.001	12.60	105.00	

Nonmetallic Rulon® J Bearings

Nonmetallic bearings offer an innovative solution to design problems that may involve lubrication, heat, cold, friction, wear and corrosion difficulties. With maximum usable temperature of 550°F (288°C), these bearings are highly reliable and efficient.

Rulon® J is a patented all-polymeric reinforced PTFE compound that operates satisfactorily against soft mating surfaces, including stainless, aluminum, mild steel and many plastics.



Rulon®J Thrust Type

Part No.	Dimensions in Inches						Each	10
	Nominal		Actual		Thickness			
	I.D.	O.D.	I.D.	O.D.				
TBP-04/10	1/4	5/8	0.254	0.625	.060"	\$2.65	\$22.95	
TBP-06/12	3/8	3/4	0.379	0.750	.060"	2.90	24.95	
TBP-08/16	1/2	1	0.504	1.000	.060"	3.30	28.85	
TBP-12/22	3/4	1-3/8	0.755	1.375	1/8	7.25	63.35	

Sleeve Type

Part No.	Dimensions in Inches				Length	Each	10
	Nominal		Actual				
	I.D.	O.D.	I.D.	O.D.			
SBP-02/04	1/8	1/4	0.129	0.251	1/4	\$2.40	\$19.90
SBP-02/06	1/8	1/4	0.129	0.251	3/8	2.80	23.05
SBP-03/04	3/16	5/16	0.191	0.313	1/4	2.85	23.75
SBP-03/08	3/16	5/16	0.191	0.313	1/2	3.80	31.65
SBP-04/04	1/4	3/8	0.254	0.376	1/	3.05	25.45
SBP-04/08	1/4	3/8	0.254	0.376	1/2	4.30	35.55
SBP-05/06	5/16	1/2	0.316	0.501	3/8	5.10	42.40
SBP-05/08	5/16	1/2	0.316	0.501	1/2	5.10	42.40
SBP-06/06	3/8	9/16	0.379	0.563	3/8	5.05	42.15
SBP-06/12	3/8	9/16	0.379	0.563	3/4	7.65	63.90
SBP-08/08	1/2	3/4	0.504	0.751	1/2	7.50	62.40
SBP-08/16	1/2	3/4	0.504	0.751	1	12.30	102.30
SBP-10/10	5/8	7/8	0.630	0.876	5/8	10.50	87.30
SBP-10/16	5/8	7/8	0.630	0.876	1	14.30	119.10
SBP-12/08	3/4	1	0.755	1.001	1/2	11.60	96.60
SBP-12/24	3/4	1	0.755	1.001	1-1/2	26.95	224.40
SBP-14/12	7/8	1-1/8	0.877	1.126	3/4	15.45	128.70
SBP-14/16	7/8	1-1/8	0.877	1.126	1	15.95	132.60
SBP-16/12	1	1-1/4	1.005	1.251	3/4	28.50	237.60
SBP-16/16	1	1-1/4	1.005	1.251	1	33.95	282.90
SBP-16/24	1	1-1/4	1.005	1.251	1-1/2	35.50	295.80

Flange Type

Part No.	Dimensions in Inches								
	Nominal		Actual		Overall Length	Flange			
	I.D.	O.D.	I.D.	O.D.		O.D.	Thickness	Each	10
FBP-03/04	3/16	5/16	0.191	0.313	1/4	0.437	1/16	\$2.95	\$24.60
FBP-03/08	3/16	5/16	0.191	0.313	1/2	0.437	1/16	4.40	36.75
FBP-04/06	1/4	3/8	0.254	0.376	3/8	0.500	1/16	4.45	36.95
FBP-04/08	1/4	3/8	0.254	0.376	1/2	0.500	1/16	5.30	44.00
FBP-06/08	3/8	5/8	0.379	0.626	1/2	0.875	1/8	10.40	86.70
FBP-06/12	3/8	5/8	0.379	0.626	3/4	0.875	1/8	13.85	115.20
FBP-08/08	1/2	3/4	0.504	0.751	1/2	1.000	1/8	8.95	74.40
FBP-08/16	1/2	3/4	0.504	0.751	1	1.000	1/8	18.65	155.40
FBP-10/16	5/8	7/8	0.630	0.876	1	1.000	1/8	19.10	159.00
FBP-12/16	3/4	1	0.755	1.001	1	1.250	1/8	31.20	259.80
FBP-16/20	1	1-1/4	1.005	1.251	1-1/2	1.500	1/8	58.70	489.00

Shop Reference for Students and Apprentices 2nd Edition

This affordable and dependable reference is now in its second edition. It is designed to provide the information needed by machinists, toolmakers, die makers, drafters and other shop personnel in a clear and concise fashion. It includes material from Machinery's Handbook and other authoritative sources and contains a wide range of useful formulas and extensive text.

Industrial Press, Inc., 2001.

Soft cover, 513 pages.

4-7/8" x 6-7/8".

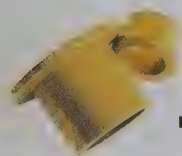
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\$20.95



Sintered Bronze Oilite® Bearings

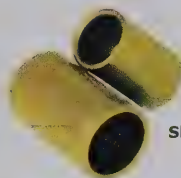
Oil cushioned Oilite® Sintered Bearings are fabricated from metal powders and contain approximately 18% oil (by volume). This vacuum impregnated oil supplements the strong, pure bronze structure and forms a hydraulic cushion to absorb unusual shocks and impacts, allowing the bearing to carry heavy loads. Self-lubricating Oilite® bearings are separated from the shaft by a protective film of oil. The oil is supplied through thousands of interconnected, oil impregnated pores. Oil rises to the bearing surface when the shaft is in motion and is reabsorbed by the bearing through capillary action when the shaft is idle. Available in Thrust, Sleeve and Flange type bearings. Sleeve and Flange Type Bearings can be machined to any length.



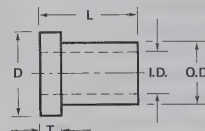
Flange Type



Thrust Type



Sleeve Type



Thrust Type Sintered Bronze Oilite® Bearings — SAE 841

Part No.	Nominal		Dimensions in Inches		Thickness (Tol. ±0.0025)	Each	10
	I.D.	O.D.	I.D.	O.D.			
TBB-04/08	1/4	1/2	0.255	0.5	1/16	\$1.15	\$10.60
2176-TT601B	1/4	5/8	.260/.250	.635/.615	1/16	1.00	8.35
TBB-04/10	1/4	5/8	0.255	0.625	1/16	1.20	10.65
TBB-05/10	5/16	5/8	0.314	0.625	1/16	1.20	10.65
TBB-05/12	5/16	3/4	0.315	0.75	1/16	1.35	11.50
TBB-06/10	3/8	5/8	0.385	0.625	1/16	1.20	10.60
TBB-06/12	3/8	3/4	0.377	0.75	1/16	1.20	10.60
2176-TT710-01B	3/8	3/4	0.3825/0.3725	0.760/.740	1/16	1.05	8.85
2176-TT710-02B	3/8	3/4	0.3825/0.3726	0.760/.741	1/8	1.40	11.55
TBB-08/12	1/2	3/4	0.507	0.75	1/16	1.20	10.60
2176-TT706B	1/2	3/4	.512/.502	.760/.740	1/16	1.00	8.40
2176-TT801B	1/2	7/8	.510/.500	.885/.865	3/16	16.85	142.40
2176-TT1001B	1/2	1	0.515/0.505	1.010/0.990	1/16	1.35	11.45
2176-TT1001-02B	1/2	1	0.515/0.506	1.010/0.990	3/32	1.85	15.35
2176-TT1001-01B	1/2	1	0.515/0.506	1.010/0.990	1/8	1.70	14.30
2176-TT1200-01B	9/16	1-1/4	.570/.560	1.260/1.240	1/16	3.45	28.85
2176-TT1200B	9/16	1-1/4	.570/.560	1.260/1.240	1/8	3.65	30.50
2176-TT1002-01B	5/8	1	.633/.623	1.010/.990	1/16	1.65	13.85
TBB-08/16	1/2	1	0.51	1	1/16	1.25	10.95
TBB-10/16	5/8	1	0.628	1	1/8	1.60	12.75
2176-TT1002B	5/8	1	.633/.623	1.010/.990	1/8	2.10	17.65
2176-TT1102-01B	5/8	1-3/16	.632/.622	1.1975/1.1775	1/16	2.80	23.45
2176-TT1102B	5/8	1-3/16	.632/.622	1.1975/1.1775	3/32	3.35	28.15
2176-TT1102-02B	5/8	1-3/16	.632/.622	1.1975/1.1775	1/8	3.60	30.15
2176-TT1204B	5/8	1-1/4	.633/.623	1.260/1.240	1/16	2.20	18.40
2176-TT1205B	3/4	1-1/4	.758/.748	1.260/1.240	1/16	1.90	15.70
TBB-12/20	3/4	1-1/4	0.753	1.25	1/8	1.80	13.50
2176-TT1205-01B	3/4	1-1/4	.758/.748	1.260/1.240	1/8	2.45	20.55
2176-TT1303-02B	3/4	1-3/8	.758/.748	1.385/1.365	1/8	2.80	23.45
2176-TT1501-01B	3/4	1-9/16	.770/.760	1.5775/1.5475	3/32	3.35	28.00
2176-TT1701B	3/4	1-3/4	.770/.760	1.765/1.735	1/8	6.35	53.75
2176-TT1503-02B	7/8	1-1/2	.8955/.8855	1.515/1.485	1/16	3.45	28.85
2176-TT1503B	7/8	1-1/2	.8955/.8855	1.515/1.485	1/8	3.05	25.60
2176-TT1502-02B	1	1-1/2	1.008/.998	1.514/1.494	1/16	2.45	20.70
2176-TT1502B	1	1-1/2	1.008/.998	1.514/1.494	1/8	2.90	24.20
2176-TT2001B	1	2	1.021/1.011	2.015/1.985	1/8	5.95	50.35
2176-TT2800B	1	2-7/8	1.0205/1.0105	2.890/2.860	1/8	25.80	218.25
2176-TT2006B	1-1/4	2	1.270/1.260	2.015/1.985	1/16	4.40	37.00
2176-TT2006-01B	1-1/4	2	1.270/1.260	2.015/1.985	1/8	4.60	38.80
2176-TT2005B	1-1/2	2-1/2	1.514/1.504	2.520/2.490	1/8	16.65	140.65
2176-TT3500-01B	1-1/2	3-1/2	1.520/1.500	3.520/3.480	1/16	39.00	329.90
2176-TT2400-01B	1-3/4	2-7/16	1.765/1.745	2.455/2.425	1/8	10.95	92.45
2176-TT2601B	1-3/4	2-5/8	1.775/1.755	2.640/2.610	1/8	10.45	88.25
2176-TT3001-03B	2	3	2.021/2.001	3.015/2.985	1/8	12.25	103.50

Assortment

TBB-9000 Contains two Thrust Type Bearings each size -20 pcs.

\$29.80

Sleeve Type Sintered Bronze Oilite® Bearings — SAE 841

Part No.	Nominal		Dimensions in Inches		Length (Tol. ±0.005)	Each	10
	I.D.	O.D.	I.D.	O.D.			
SBB-01	1/16	1/4	0.062	0.250	7/64	\$11.60	\$96.60
SBB-015	3/32	5/16	0.093	0.312	7/64	12.55	104.40
SBB-02/02	1/8	3/16	0.126	0.189	1/8	1.25	11.15
2176-AA110-02	1/8	3/16	0.1255 / 0.1265	0.1895 / 0.1885	1/8	1.25	11.15
SBB-02/05	1/8	3/16	0.126	0.189	5/16	1.25	11.15
2176-AA227-01	1/8	1/4	0.1260 / 0.1270	0.2530 / 0.252	1/8	1.00	5.10
2176-AA227-02	1/8	1/4	0.1260 / 0.1270	0.2530 / 0.252	1/4	1.00	4.40
2176-AA227-03	1/8	1/4	0.1260 / 0.1270	0.2530 / 0.252	3/8	1.00	4.75
2176-AA225-02	3/16	1/4	0.1865 / 0.1875	0.2520 / 0.251	1/4	1.00	4.20
2176-AA225-01	3/16	1/4	0.1865 / 0.1875	0.2520 / 0.251	5/16	1.00	5.50

Continued next page

Sleeve Type Sintered Bronze Oilite® Bearings — SAE 841

Part No.	Nominal		Dimensions in Inches		Length (Tol. ±0.005)	Each	10
	I.D.	O.D.	I.D.	O.D.			
2176-AA225-06	3/16	1/4	0.1865 / 0.1875	0.2520 / 0.251	3/8	\$1.00	\$5.60
2176-AA225-04	3/16	1/4	0.1865 / 0.1875	0.2520 / 0.251	1/2	1.00	5.90
2176-AA225-03	3/16	1/4	0.1865 / 0.1875	0.2520 / 0.251	5/8	1.50	12.75
SBB-03/03	3/16	5/16	0.189	0.314	3/16	1.25	11.15
2176-AA309	3/16	5/16	0.1875 / 0.1885	0.3145 / 0.3135	1/4	1.00	4.40
SBB-03/06	3/16	5/16	0.189	0.314	3/8	1.30	11.20
2176-AA309-14	3/16	5/16	0.1875 / 0.1885	0.3145 / 0.3135	1/2	1.00	4.75
2176-AA309-07	3/16	5/16	0.1875 / 0.1885	0.3145 / 0.3135	5/8	1.00	7.70
2176-AA309-05	3/16	5/16	0.3145 / 0.3135"	0.1875 / 0.1885	3/4	1.00	7.90
2176-AA346-01	3/16	3/8	0.1875 / 0.1885	0.3775 / 0.3765	1/4	1.00	5.65
2176-AA346-02	3/16	3/8	0.1875 / 0.1885	0.3775 / 0.3765	3/8	1.00	6.25
2176-AA346	3/16	3/8	0.1875 / 0.1885	0.3775 / 0.3765	1/2	1.30	11.20
SBB-04/04	1/4	3/8	0.252	0.377	1/4	1.30	11.20
2176-AA304-09	1/4	3/8	0.2495 / 0.2505	0.3770 / 0.376	5/16	1.00	4.75
2176-AA304-07	1/4	3/8	0.2495 / 0.2505	0.3770 / 0.376	3/8	1.00	4.10
SBB-04/08	1/4	3/8	0.252	0.377	1/2	1.35	11.25
2176-AA304-01	1/4	3/8	0.2495 / 0.2505	0.3770 / 0.376	5/8	1.00	6.30
2176-AA304-22	1/4	3/8	0.2495 / 0.2505	0.3770 / 0.376	3/4	1.00	7.90
2176-AA304-21	1/4	3/8	0.2495 / 0.2505	0.3770 / 0.376	7/8	1.15	9.65
SBB-04/16	1/4	3/8	0.252	0.377	1	2.25	18.50
2176-AA519-01	1/4	1/2	0.2510 / 0.2520	0.5015 / 0.5005	1/2	1.20	10.40
2176-AA519-05	1/4	1/2	0.2510 / 0.2520	0.5015 / 0.5005	5/8	1.50	12.85
2176-AA519-02	1/4	1/2	0.2510 / 0.2520	0.5015 / 0.5005	3/4	1.45	12.65
2176-AA519-03	1/4	1/2	0.2510 / 0.2520	0.5015 / 0.5005	1	1.75	15.30
2176-AA515-21	7/16	9/16	0.4380 / 0.4390	0.5650 / 0.564	3/8	1.05	9.15
2176-AA515-02	7/16	9/16	0.4380 / 0.4390	0.5650 / 0.564	1/2	1.15	9.80
2176-AA515-03	7/16	9/16	0.4380 / 0.4390	0.5650 / 0.564	5/8	1.05	9.00
2176-AA515	7/16	9/16	0.4380 / 0.4390	0.5650 / 0.564	3/4	1.90	16.35
2176-AA515-08	7/16	9/16	0.4380 / 0.4390	0.5650 / 0.564	1	1.65	14.15
2176-AA515-09	7/16	9/16	0.4380 / 0.4390	0.5650 / 0.564	1-1/4	2.95	25.70
2176-AA627-08	7/16	5/8	0.4380 / 0.4390	0.6270 / 0.626	1/2	1.20	10.50
2176-AA627-03	7/16	5/8	0.4380 / 0.4390	0.6270 / 0.626	5/8	1.30	11.20
2176-AA627	7/16	5/8	0.4380 / 0.4390	0.6270 / 0.626	3/4	1.40	12.15
2176-AA627-04	7/16	5/8	0.4380 / 0.4390	0.6270 / 0.626	1	1.25	8.45
2176-AA628-21	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	5/16	1.25	4.10
2176-AA628-07	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	3/8	1.25	4.15
2176-AA628-08	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	7/16	1.25	4.65
SBB-05/10	5/16	7/16	0.313	0.439	5/16	1.55	12.75
SBB-05/20	5/16	7/16	0.313	0.439	1 1/4	1.65	13.65
SBB-06/08	3/8	1/2	0.378	0.502	1/2'	1.35	11.25
SBB-06/12	3/8	1/2	0.378	0.502	3/4	1.40	11.50
SBB-06/16	3/8	1/2	0.378	0.502	1	2.20	18.25
SBB-08/08	1/2	5/8	0.501	0.628	1/2	1.65	13.65
2176-AA628-03	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	9/16	1.25	6.90
2176-AA628-25	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	5/8	1.25	6.20
2176-AA628-12	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	9/16	1.25	6.85
2176-AA628-06	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	3/4	1.25	6.95
2176-AA628-20	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	7/8	1.25	7.20
SBB-08/16	1/2	5/8	0.501	0.628	1	1.70	14.00
2176-AA628-09	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	1-1/8	1.25	9.30
2176-AA628-11	1/2	5/8	0.5005 / 0.5015	0.6280 / 0.627	1-1/4	1.25	10.10
SBB-08/24	1/2	5/8	0.501	0.628	1-1/2	2.05	17.75
2176-AA650-01	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	1/2	1.25	8.05
2176-AA650-06	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	9/16	1.25	8.15
2176-AA650-09	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	5/8	1.30	11.85
2176-AA650	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	3/4	1.35	12.25
2176-AA650-02	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	1	1.45	13.10
2176-AA650-05	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	1-1/8	1.50	13.75
2176-AA650-03	1/2	11/16	0.5005 / 0.5015	0.6900 / 0.689	1-1/2	1.65	14.90
2176-AA744-05	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	1/2	1.25	8.05
2176-AA744-09	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	5/8	1.25	10.95
2176-AA744-04	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	3/4	1.25	11.50
2176-AA744-10	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	7/8	1.40	12.60
2176-AA744-03	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	1	1.40	12.85
2176-AA744-07	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	1-1/8	2.00	18.30
2176-AA744	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	1-1/4	1.65	0.00
2176-AA744-01	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	1-1/2	2.65	24.10
2176-AA744-02	1/2	3/4	0.5015 / 0.5025	0.7530 / 0.752	1-3/4	3.55	32.60
2176-AA711-07	9/16	3/4	0.5625 / 0.5635	0.7535 / 0.7525	1/2'	1.50	13.65
2176-AA711-01	9/16	3/4	0.5625 / 0.5635	0.7535 / 0.7525	3/4	1.65	14.80
2176-AA711-03	9/16	3/4	0.5625 / 0.5635	0.7535 / 0.7525	1	1.80	16.55
2176-AA711-05	9/16	3/4	0.5625 / 0.5635	0.7535 / 0.7525	1-1/4	2.00	18.05
2176-AA711	9/16	3/4	0.5625 / 0.5635	0.7535 / 0.7525	1-3/8	2.15	19.60



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Flange Type Sintered Bronze Oilite® Bearings

Part No.	Dimensions in Inches								Each	10
	Nominal		Inches		(L)		Flange			
	I.D.	O.D.	I.D.	O.D.	Length	±0.005 (D) O.D.	±0.0025 (T) Thickness			
FBB-01	1/16	1/4	—	—	7/64	19/64	1/32	\$8.50	\$74.00	
FBB-015	3/32	5/16	—	—	7/64	23/64	1/32	8.50	74.00	
FBB-02/04	1/8	1/4	—	—	1/4	5/16	1/16	1.40	12.40	
FBB-02/06	1/8	1/4	0.1250	0.2510	3/8	5/16	1/16	1.40	12.40	
FBB-03/03	3/16	5/16	—	—	3/16	7/16	1/16	1.40	12.40	
FBB-03/06	3/16	5/16	0.1885	0.3130	3/8	7/16	1/16	1.45	12.45	
FBB-03/08	3/16	5/16	0.1885	0.3130	1/2	7/16	1/16	1.50	12.50	
FBB-04/04	1/4	3/8	0.2510	0.3765	1/4	15/32	1/16	1.45	12.45	
FBB-04/06	1/4	3/8	0.2510	0.3765	3/8	15/32	1/16	1.45	12.45	
FBB-04/08	1/4	3/8	0.2510	0.3765	1/2	15/32	1/16	1.50	12.50	
FBB-05/06	5/16	7/16	—	—	3/8	9/16	1/16	1.45	12.45	
FBB-05/08	5/16	7/16	0.3115	0.4390	1/2	9/16	1/16	1.35	12.00	
FBB-05/14	5/16	7/16	0.3115	0.4390	7/8	9/16	1/16	1.55	13.95	
FBB-06/06	3/8	1/2	0.3775	0.5010	3/8	5/8	1/16	1.50	12.50	
FBB-06/08	3/8	1/2	0.3775	0.5010	1/2	5/8	1/16	1.55	12.85	
FBB-08/08	1/2	5/8	0.5010	0.6260	1/2	7/8	1/16	1.55	12.85	
FBB-08/12	1/2	5/8	0.5010	0.6260	3/4	7/8	1/16	1.55	12.95	
FBB-08/16	1/2	5/8	0.5010	0.6260	1	7/8	1/16	1.80	15.55	
FBB-10/10	5/8	7/8	—	—	5/8	1	1/8	1.95	16.50	
FBB-10/20	5/8	7/8	0.6260	0.8760	1-1/4	1	1/8	2.80	23.75	
FBB-12/08	3/4	1	—	—	1/2"	1-7/16	1/8	2.45	20.85	
FBB-12/18	3/4	1	0.7495	1.0010	1-1/8	1-7/16	1/8	3.45	29.25	
FBB-14/10	7/8	1	0.8765	1.0030	5/8	1-1/4	1/8	2.05	18.50	
FBB-14/16	7/8	1	0.8755	—	1	1-1/4	1/8	2.15	19.50	
FBB-16/12	1	1-1/4	1.0010	1.2530	3/4	1-7/8	1/8	3.30	28.85	
FBB-16/20*	1	1-1/4	1.0000	1.2520	1-1/4	1-7/8	1/8	3.80	35.90	

Assortment

FBB-9000 Contains two Flange Type Bearings each size listed above 52 pcs.

\$122.75



Ceramic Linear Motion Bearings

Two types of ceramic linear motion bearings are available. The standard form requires lubrication while the Rulon® J type is self-lubricating. The Aluminum Oxide coating linear motion bearing has an extremely low coefficient of friction even lower than Teflon® bearings to prevent shaft wear and galling. These bearings, totally interchangeable with rolling element equivalents, allow line-to-line contact.

They provide excellent electrical insulation and will not rust or corrode. The 0.002-inch aluminum oxide coating of the ceramic bearing on a machined aluminum substrate, provides an excellent wear-resistant surface. These unique bearings perform well under vacuum conditions and their durable coating is non-toxic. The self-lubricating type (Rulon® J liner) is recommended for use with soft shafting, including cold rolled steel, aluminum, and 300 series stainless steel.

Properties	Standard	Self-Lubricating
Coefficient of Friction	0.04 - 0.08	0.10 - 0.18
Temperature Range	400° to -200°F 204° to -129°C	550° to -400°F 288° to -240°C
Maximum Velocity (no load)	unlimited	400 SFM
Maximum Load (static) Linear Motion	5,000 psi	5,000 psi
Maximum Load (static) Rotary Motion	10,000 psi	10,000 psi
Shaft Hardness (minimum)	RC 58-63	RB 25

Standard Aluminum Oxide Bearing Surface

Part No.	Dimensions in Inches		Length	Each	5
	Bore	O.D.			
CLB-2505	0.250	0.500	0.75	\$20.15	\$74.95
CLB-3755	0.375	0.625	0.875	21.85	89.95
CLB-5005	0.500	0.875	1.25	22.75	89.10

Self-Lubricating Rulon® J Bearing Surface

Part No.	Dimensions in Inches		Length	Each	5
	Bore	O.D.			
CLB-2505SL	0.250	0.500	0.75	\$20.15	\$74.95
CLB-3755SL	0.375	0.625	0.875	21.85	89.95
CLB-5005SL	0.500	0.875	1.25	22.75	89.10

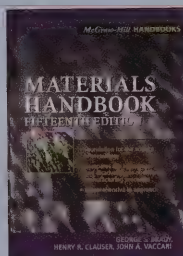
Alignable Press Bearings

"Spyralign" acetal press bearings provide bearings where thin metals are encountered in light load, low speed applications. These easy-to-install bearings offer a smooth, insulating surface and assure trouble-free operation. For high precision, bearings may be aligned within 5% of center line. Friction is minimal and frequent lubrication is not necessary. Stainless steel 18-8 retainers.

To Install: By applying constant force, press bearing into hole of correct size and lubricate with light oil during run-in period.

Press Bearings — Acetal

Part No.	Dimensions in Inches		Drill Size	Bearing Bore	Minimum Panel Thickness	Each	10
	Shaft Size	Hole Size In Panel					
PBD-02	1/8	0.297-0.300	19/64	0.1265-0.1280	0.040	\$3.25	\$27.10
PBD-03	3/16	0.375-0.378	3/8	0.1905-0.1920	0.040	3.25	27.10
PBD-04	1/4	0.375-0.378	3/8	0.2520-0.2535	0.040	2.90	24.50
PBD-05	5/16	0.547-0.550	35/64	0.3150-0.3165	0.060	5.30	44.00
PBD-06	3/8	0.625-0.628	5/8	0.3775-0.3790	0.060	4.90	40.70
PBD-08	1/2	0.812-0.815	13/16	0.5035-0.5055	0.060	6.45	55.00



Materials Handbook

A Comprehensive Resource For Almost Every Type Of Known Material

"Brady's" one-volume encyclopedia contains over 13,000 concise entries, describing the primary characteristics of chemicals, metals, minerals, fuels, plastics, textiles, finishes, woods, pharmaceuticals, elastomers, ceramics, coatings, composites, industrial substances, foodstuffs, plant and animal products - almost anything that derives from natural elements.

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A favorite at Small Parts, this valuable reference is recommended for engineers, executives, purchasing and manufacturing managers, production supervisors, and students - anyone requiring a comprehensive resource with reliable, up-to-date information.

Fourteenth Edition, 1997

George S. Brady, Henry R. Clauser, John A. Vaccari

Published by McGraw-Hill

Hard cover, 136 pages

BCK-MH \$89.50

Brass Miter and Bevel Gears

Miter and Bevel gears transmit motion and power between intersecting shafts positioned at right angles. Both gear types are cut with a generated tooth form that has a localized lengthwise tooth bearing. These gears permit minor adjustment of gears during assembly and allow for some displacement due to deflection under operating loads without concentrating the load on the end of the tooth. For reliable performance, gears must be pinned to shaft with a dowel or taper pin.

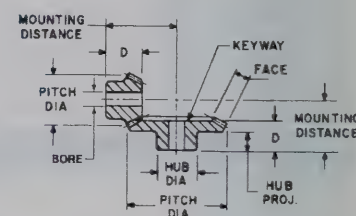
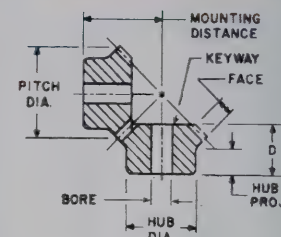
A set of Miter gears consists of two identical gears that yield a 1:1 ratio. Bevel gear sets consist of two gears of different pitch diameter that yield ratios greater than 1:1. Undrilled. No set screw supplied.

Brass Miter Gear Sets

Dimensions in Inches									
Part No.	Teeth	Pitch Dia.	Face	Mounting Bore	Distance	D	Hub Diameter	Hub Proj.	Price Per Set
48 Pitch 1:1 Ratio - 20° Pressure Angle. Bore Tolerance = ± 0.0005									
GBM-4815	15	0.312	0.07	0.125	0.312	0.215	0.25	0.13	\$15.15
GBM-4818	18	0.375	0.08	0.125	0.406	0.286	0.31	0.16	15.70
32 Pitch 1:1 Ratio - 20° Pressure Angle. Bore Tolerance = ± 0.0005									
GBM-3216	16	0.5	0.12	0.188	0.5	0.349	0.41	0.19	17.15
GBM-3224	24	0.75	0.14	0.188	0.688	0.427	0.5	0.25	21.05

Brass Bevel Gear Sets

Part No.	Dimensions in Inches						Hub Dimaeter	Hub Proj.	Price Per Set
	Teeth	Pitch Dia.	Face	Mounting		D			
				Bore	Distance				
20° Pressure Angle. Bore Tolerance = ± 0.0005									
GBB-482	18	0.375	0.12	0.125	0.594	0.335	0.28	0.19	\$22.55
48 pitch 2:1 ratio	36	0.75	0.12	0.188	0.438	0.257	0.44	0.19	
GBB-483	12	0.25	0.09	0.125	0.562	0.285	0.22	0.17	
48 pitch 3:1 ratio	36	0.75	0.09	0.188	0.375	0.257	0.44	0.19	22.00
GBB-322	16	0.5	0.14	0.188	0.719	0.365	0.38	0.17	23.50
32 pitch 2:1 ratio	32	1	0.14	0.188	0.594	0.382	0.56	0.25	
GBB-324	16	0.5	0.24	0.188	1.25	0.5	0.38	0.22	
32 pitch 4:1 ratio	64	2	0.24	0.313	0.688	0.445	1	0.31	38.65

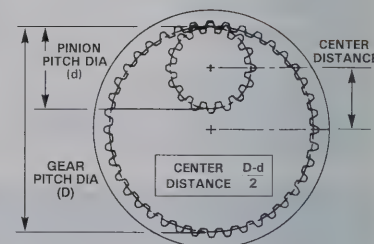


Brass Internal Gears

Internal gears have the teeth cut on the inside of the rim rather than the outside. When used with pinions, more teeth carry the load and it is distributed more evenly. This distribution of load decreases the pressure intensity and extends the life of the gear. The compact arrangement of an internal gear also means the center distance for a given velocity is shorter than that of an external gear.

Brass Internal Gears

Dimensions in Inches					
Part No.	Teeth	Pitch Dia.	O.D.	I.D.	Price Each
24 Pitch - 20° Pressure Angle. O.D. Tol: +0.001 + 0.003, I.D. Tol: +0.008, 0.000					
GBI-24036	36	1.500	2.250	1.450	\$64.90
GBI-24048	48	2.000	2.750	1.950	74.75
GBI-24072	72	3.000	3.750	2.950	99.75
GBI-24096	96	4.000	4.750	3.950	103.70
GBI-24144	144	6.000	6.750	5.950	123.40
32 Pitch - 20° Pressure Angle. O.D. Tol: + 0.001 to + 0.003, I.D. Tol: +0.005, - 0.000					
GBI-3248	48	1.500	2.000	1.461	61.45
GBI-3264	64	2.000	2.750	1.961	69.70
GBI-3296	96	3.000	3.750	2.961	92.95
GBI-32128	128	4.000	4.750	3.961	95.25
GBI-32192	192	6.000	6.750	5.961	104.05
48 Pitch - 20° Pressure Angle. O.D. Tol: + 0.001 to + 0.003, I.D. Tol: + 0.004, -0.000					
GBI-4848	48	1.000	1.500	0.974	51.35
GBI-4872	72	1.500	2.000	1.474	57.00
GBI-4896	96	2.000	2.750	1.974	64.95
GBI-48144	144	3.000	3.750	2.974	82.75
GBI-48192	192	6.000	6.750	3.974	91.80
64 Pitch - 20° Pressure Angle. O.D. Tol: +0.001 to +0.003, I.D. Tol: +0.004, - 0.000					
GBI-64064	64	1.000	1.5	0.98	52.35
GBI-64096	96	1.500	2.000	1.48	58.15
GBI-64128	128	2.000	2.75	1.98	66.30
GBI-64-192	192	3.000	3.75	2.98	84.60



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Chain and Sprockets • Timing Belt and Pulleys
• Minature Delrin® and Delrin® Gears

Brass Racks and Pinions

Brass racks and pinions are useful in numerous shop and lab applications where it is desirable to change rotary motion into linear movement. Easily drilled, tapped or soldered. 48 and 32 pitch racks may be combined with similar pitch Delrin® gears.



Brass Racks - 20° Pressure Angle

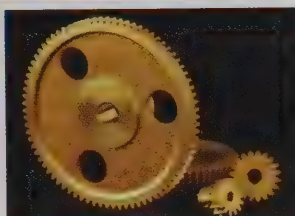
Part No.	Pitch	Dimensions in Inches			to Base	6	12	24
		Width	Thickness					
GRB-64/20	64	1/8	1/8	0.109		\$11.50	\$20.90	\$37.95
GRB-48/20	48	1/8	1/8	0.104		11.50	20.90	37.95
GRB-32/20	32	3/16	3/16	0.156		12.85	22.40	42.50

Brass Pinions - 20° Pressure Angle

Part No.	Pitch	Teeth	Pitch		Face	Bore	Hub		Each	10
			Diameter	Width			Dia	Proj.		
PGB-6416	64	16	0.250	1/8	1/8	3/16	3/16	7.15	\$53.65	
PGB-6418	64	18	0.281	0.125	0.125	0.22	0.19	7.20	63.10	
PGB-6420	64	20	0.312	1/8	1/8	1/4	3/16	8.10	60.65	
PGB-6424	64	24	0.375	1/8	1/8	9/32	3/16	8.40	62.80	
PGB-6428	64	28	0.438	0.125	0.125	0.34	0.19	8.55	75.00	
PGB-6432	64	32	0.500	0.125	0.188	0.38	0.25	9.20	80.80	
PGB-6436	64	36	0.562	0.125	0.188	0.44	0.25	9.65	84.55	
PGB-6440	64	40	0.625	0.125	0.188	0.44	0.25	10.35	90.95	
PGB-6444	64	44	0.688	0.125	0.188	0.50	0.25	10.70	93.70	
PGB-6448	64	48	0.750	0.125	0.188	0.50	0.25	10.95	95.85	
PGB-6452	64	52	0.812	0.125	0.188	0.56	0.25	12.40	108.75	
PGB-6456	64	56	0.875	0.125	0.188	0.56	0.25	14.35	125.90	
PGB-6460	64	60	0.938	0.125	0.188	0.62	0.25	15.50	136.05	
PGB-6464	64	64	1.000	0.125	0.250	0.62	0.25	17.20	150.80	
PGB-6472	64	72	1.125	0.125	0.250	0.69	0.25	22.65	198.80	
PGB-6480	64	80	1.250	0.125	0.250	0.69	0.25	26.40	232.00	
PGB-6488	64	88	1.375	0.125	0.250	0.75	0.25	30.35	266.55	
PGB-6496	64	96	1.500	0.125	0.250	0.75	0.25	31.95	280.45	
PGB-64112	64	112	1.750	0.125	0.250	0.81	0.25	36.85	323.50	
PGB-64128	64	128	2.000	0.125	0.250	0.88	0.25	39.20	344.25	
PGB-64144	64	144	2.250	0.125	0.313	0.75	0.31	41.25	362.50	
PGB-64160	64	160	2.500	0.125	0.313	0.75	0.31	45.05	395.60	
PGB-64192	64	192	3.000	0.125	0.313	0.88	0.31	48.85	429.10	
PGB-4812	48	12	0.250	1/8	1/8	3/16	3/16	6.90	51.75	
PGB-4818	48	18	0.375	1/8	1/8	9/32	3/16	8.05	60.40	
PGB-4824	48	24	0.500	1/8	3/16	3/8	1/4	9.35	70.15	
PGB-3212	32	12	0.375	3/16	1/8	9/32	1/4	8.05	60.40	
PGB-3216	32	16	0.500	3/16	3/16	13/32	1/4	8.95	67.15	
PGB-3220	32	20	0.625	3/16	3/16	15/32	1/4	10.05	75.40	
PGB-3224	32	24	0.750	3/16	3/16	17/32	1/4	11.40	85.50	

Brass Spur Gears

Corrosion resistant and silent running. Good for light to moderate loads.



Brass Spur Gears

Part No.	Teeth	Dimensions in Inches				Each	10
		Pitch Dia.	Bore	Hub Diameter	Hub Proj.		
32 Pitch, 20° Pressure Angle: Face Width: 0.188". Outside Diameter = Pitch Diameter + 0.062". Overall Length = 0.188" + Hub Projection							
GBS-3212	12	0.375	0.125	0.28	0.25	\$8.05	\$60.40
GBS-3214	14	0.438	0.125	0.34	0.25	8.50	63.75
GBS-3216	16	0.5	0.188	0.4	0.25	8.95	67.15
GBS-3218	18	0.562	0.188	0.43	0.25	9.40	70.50
GBS-3220	20	0.625	0.188	0.47	0.25	10.05	75.40
GBS-3224	24	0.75	0.188	0.53	0.25	11.40	85.50
GBS-3228	28	0.875	0.188	0.59	0.25	12.45	93.40
GBS-3232	32	1	0.25	0.66	0.25	13.35	100.15
GBS-3236	36	1.125	0.25	0.72	0.25	15.80	118.50
GBS-3240	40	1.25	0.25	0.72	0.25	17.15	128.65
GBS-3248	48	1.5	0.25	0.78	0.25	20.15	151.15
GBS-3256	56	1.75	0.313	0.84	0.25	21.85	163.90
GBS-3264	64	2	0.313	0.9	0.25	33.15	248.65
GBS-3272	72	2.25	0.313	0.88	0.31	35.80	268.50
GBS-3280	80	2.5	0.313	0.88	0.31	39.00	292.50
GBS-3296	96	3	0.313	1	0.31	43.20	342.00
48 Pitch, 20°Pressure Angle: Face width 0.125". Outside Diameter = Pitch Diameter + 0.042. Overall Length = 0.125 + Hub Projection							
GBS-48012	12	0.25	0.125	0.18	0.19	6.90	51.75
GBS-48015	15	0.312	0.125	0.22	0.19	7.40	55.50
GBS-48018	18	0.375	0.125	0.28	0.19	8.05	60.40
GBS-48021	21	0.438	0.125	0.35	0.19	8.75	65.65
GBS-48024	24	0.5	0.188	0.38	0.25	9.35	70.15
GBS-48027	27	0.562	0.188	0.44	0.25	9.75	73.15
GBS-48030	30	0.625	0.188	0.44	0.25	10.50	78.75
GBS-48036	36	0.75	0.188	0.5	0.25	11.05	82.90
GBS-48042	42	0.875	0.188	0.57	0.25	14.35	107.65
GBS-48048	48	1	0.25	0.63	0.25	17.15	128.65
GBS-48054	54	1.125	0.25	0.69	0.25	22.45	168.40
GBS-48060	60	1.25	0.25	0.69	0.25	26.15	196.15
GBS-48072	72	1.5	0.25	0.75	0.25	31.50	236.25
GBS-48084	84	1.75	0.25	0.82	0.25	36.30	272.25
GBS-48096	96	2	0.25	0.88	0.25	38.60	289.50
GBS-481020	120	2.5	0.313	0.75	0.31	42.85	321.40

Order Example: GRB-64-12 is 12" of 64 pitch Rack

Chrome Steel Ball Bearing

These Ball Bearings are made from SAE 52100 Chrome Steel to sustain radial, thrust and combined loads proportionate to the capacities of the small shafts for which they are designed. Especially suitable for use in fractional horsepower motors, small appliances, precision instruments, and similar devices, these double-shielded bearings are electric motor quality for applications requiring extra-quiet performance. Other sizes available.



Chrome Steel Ball Bearing SAE 52100

Dimensions in Inches

Part No.	Bore Inches	Outside Diameter Inches	Thickness Inches	Each	10
BR-1*	0.0469	0.1562	0.0937	\$12.95	\$107.60
BR-1-1/2*	0.0937	0.313	0.1406	11.55	96.00
BR-2	0.1250	0.375	0.1562	4.20	35.00
BR-3	0.1875	0.500	0.1960	4.95	41.00
BR-4	0.2500	0.625	0.1960	4.15	34.50
BR-4L	0.2500	0.750	0.2812	6.20	51.40
BR-6	0.3750	0.875	0.2812	4.30	35.55
BR-8	0.5000	1.125	0.3125	5.20	43.25
BR-10	0.6250	1.375	0.3438	7.30	60.50
BR-12	0.7500	1.625	0.4375	9.10	75.75
BR-16	1.0000	2.000	0.5000	10.55	88.00
BR-20	1.2500	2.2500	0.5000	12.35	102.80

*Stainless Steel Type 440C, unshielded.

Metric Chrome Steel Ball Bearing SAE 52100

Dimensions in Millimeter

Part No.	Bore Millimeters	Outside Diameter Millimeters	Thickness Millimeters	Each	10
BMR-1*	1	3	1	\$14.55	\$121.25
BMR-1-1/2	1.5	6	3	31.20	260.00
BMR-2	2	7	3.5	24.75	206.35
BMR-3	3	10	4	6.00	50.00
BMR-4	4	13	5	6.00	50.00
BMR-4L	4	16	5	6.60	55.00
BMR-5	5	16	5	4.60	38.20
BMR-6	6	19	6	4.30	35.75
BMR-7	7	19	6	4.80	39.95
BMR-7L	7	22	7	5.55	46.00
BMR-8	8	22	7	4.00	33.00
BMR-9	9	24	7	6.00	48.95
BMR-9L	9	26	8	6.85	56.85
BMR-10	10	35	11	6.60	54.95
BMR-15	15	42	13	6.90	57.30
BMR-20	20	52	15	9.30	77.50

*Stainless Steel Type 440C, unshielded.



Shaft Collar

Precision machined shaft collars are furnished with socket cup point set screw and are double chamfered. Useful for locating shafting, as thrust collars, arbor spacers, sprocket hubs, bearing holders and as end stops for spacers, they are also handy for experimental uses. Available in 303 zinc plated steel or in 303 stainless steel. Bore Tolerance: $-.000"/+.0025"$.

Shaft Collar Steel Type 12L14

Dimensions in Inches						
Part No.	Bore	O.D.	Width	Set Screw	Each	10
SC-02	1/8	3/8	1/4	#6-32	\$1.10	\$9.10
SC-03	3/16	7/16	1/4	#8-32	1.10	9.10
SC-04	1/4	1/2	5/16	#10-32	1.15	9.15
SC-05	5/16	5/8	5/16	#10-32	1.20	9.25
SC-06	3/8	3/4	3/8	1/4-20	1.25	9.45
SC-07	7/16	7/8	7/16	1/4-20	1.30	9.80
SC-08	1/2	1	7/16	1/4-20	1.35	10.15
SC-10	5/8	1-1/8	1/2	5/16-18	1.40	10.75
SC-12	3/4	1-1/4	9/16	5/16-18	1.50	12.50
SC-14	7/8	1-1/2	9/16	5/16-18	1.80	15.00
SC-16	1"	1-1/2"	5/8"	5/16-18	2.00	16.50



Shaft Collars Clamp Type, 1 Piece

Dimensioned to keep the clamping hex socket cap screw safely within the outside diameter of the collar, these shaft collars apply even pressure to the shaft for greater torque strength. They can be moved or repositioned

without damage to the shaft. Recessed screw head provides an outside surface free of major projections. Bore Tolerance: $-.000"/+.003"$

Stainless Steel Type 18-8 Shaft Collars

Dimensions in Inches						
Part No.	Bore	O.D.	Width	Clamp Screw	Each	10
SCX-02	1/8	3/16	1/4	#4-40	\$5.65	\$47.00
SCX-03	3/16	3/16	1/4	#4-40	4.05	33.50
SCX-04	1/4	3/16	1/4	#4-40	4.05	33.50
SCX-05	5/16	3/16	1/4	#4-40	4.15	34.45
SCX-06	3/8	1-1/16	5/16	#6-32	4.95	41.00
SCX-07	7/16	1-1/16	5/16	#6-32	5.75	47.70
SCX-08	1/2	1-1/4	3/8	#8-32	6.35	52.85
SCX-10	5/8	1-1/2	13/32	#10-32	7.55	62.85
SCX-12	3/4	1-3/4	1/2	1/4-28	8.75	72.90
SCX-14	7/8	1-7/8	1/2	1/4-28	10.50	87.30
SCX-16	1	2	1/2	1/4-28	12.45	103.65

Metric Stainless Steel Type Shaft Collars

Dimensions in Millimeter						
Part No.	Bore	O.D.	Width	Clamp Screw	Each	10
SCX-M05	5mm	17.5mm	9mm	M3 x 8	\$4.45	\$40.40
SCX-M06	6mm	19mm	9mm	M3 x 8	5.65	51.60
SCX-M08	8mm	25.4mm	9mm	M3 x 8	5.75	52.20
SCX-M10	10mm	25.4mm	9mm	M3 x 10	5.85	53.20
SCX-M12	12mm	28.6mm	11mm	M4 x 12	6.15	55.60

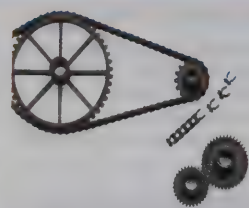


Shaft Collars Clamp Type 2 Piece

Two-piece collar provides greater holding capacity over split collar. Includes two hex socket-cap clamp screws. Excellent choice where shaft ends are constrained or disassembly of machine is not recommended. For larger sizes please call us. Bore Tolerance: $-.000"/+.003"$.

Stainless Steel Type 303 Shaft Collars

Dimensions in Inches						
Part No.	Bore	O.D.	Width	Clamp Screw	Each	10
SC2X-04	1/4	13/16	1/4	#4-40	\$6.25	\$52.00
SC2X-05	5/16	13/16	1/4	#4-40	6.80	56.50
SC2X-06	3/8	1-1/16	5/16	#6-32	6.95	57.85
SC2X-08	1/2	1-1/4	3/8	#8-32	8.85	73.45
SC2X-10	5/8	1-1/2	13/32	#10-32	10.95	91.35
SC2X-12	3/4	1-3/4	1/2	1/4-28	12.00	99.95
SC2X-14	7/8	1-7/8	1/2	1/4-28	14.25	115.40
SC2X-16	1	2	1/2	1/4-28	14.40	119.65



Miniature Delrin® Chain Sprockets

This unique snap-lock chain link design allows any pitch length to be fabricated in a matter of seconds without splicing, master links or special tools. Conventional pitch sizes do not apply to this unique miniature chain. One stock size can fill a number of different requirements, thereby reducing

inventory cost. The ease of installation can decrease assembly labor and enable the designer to simplify other system components such as die cast frames and shaft bearing plates.

Although the chain weighs a mere .067 oz. per foot (1.9 gm/ft), it provides excellent service with running tension loads up to 2 pounds, and has an ultimate breaking strength of 7 pounds at 75° F. Sprocket weights ranging from .009 oz. to .097 oz. (.26 gm to 2.7gm) keep the system inertia to a minimum.

These drive components exhibit outstanding resistance to a wide range of chemicals and solvents. The ability to operate in high humidity and corrosive environments can be an added benefit in many applications.

The chain and sprockets are pre-lubricated and stress relieved at elevated temperature.

The chain and mating sprockets are available from factory stock in a wide selection of both teeth and shaft bore sizes.

Miniature Delrin® Chain Sprockets

Dimensions in Inches							
Part No.	No. of Teeth	Bore	Pitch Dia.	O.D.	5	10	25
MDS-08A	8	1/8	0.318	0.371	\$2.95	\$5.50	\$12.70
MDS-09A	9	1/8	0.356	0.409	3.00	5.60	13.00
MDS-10A	10	1/8	0.394	0.456	3.10	5.75	13.35
MDS-10B	10	3/16	0.394	0.456	3.10	5.75	13.35
MDS-12A	12	1/8	0.471	0.535	3.45	6.45	14.95
MDS-12B	12	3/16	0.471	0.535	3.45	6.45	14.95
MDS-12C	12	1/4	0.471	0.535	3.45	6.45	14.95
MDS-15A	15	1/8	0.586	0.650	3.60	6.75	15.60
MDS-15B	15	3/16	0.586	0.650	3.60	6.75	15.60
MDS-15C	15	1/4	0.586	0.650	3.60	6.75	15.60
MDS-16A	16	1/8	0.625	0.690	3.70	6.90	15.95
MDS-16B	16	3/16	0.625	0.690	3.70	6.90	15.95
MDS-16C	16	1/4	0.625	0.690	3.70	6.90	15.95
MDS-18A	18	1/8	0.702	0.769	4.00	7.45	17.25
MDS-18B	18	3/16	0.702	0.769	4.00	7.45	17.25
MDS-18C	18	1/4	0.702	0.769	4.00	7.45	17.25
MDS-20A	20	1/8	0.780	0.848	4.15	7.70	17.90
MDS-20B	20	3/16	0.780	0.848	4.15	7.70	17.90
MDS-20C	20	1/4	0.780	0.848	4.15	7.70	17.90
MDS-20D	20	3/8	0.780	0.848	4.15	7.70	17.90
MDS-24B	24	3/16	0.934	1.005	4.50	8.40	19.50
MDS-24C	24	1/4	0.934	1.005	4.50	8.40	19.50
MDS-24D	24	3/8	0.934	1.005	4.50	8.40	19.50
MDS-30B	30	3/16	1.167	1.239	5.10	9.55	22.10
MDS-30C	30	1/4	1.167	1.239	5.10	9.55	22.10
MDS-30D	30	3/8	1.167	1.239	5.10	9.55	22.10
MDS-32B	32	3/16	1.246	1.318	5.40	10.10	23.40
MDS-32C	32	1/4	1.246	1.318	5.40	10.10	23.40
MDS-32D	32	3/8	1.246	1.318	5.40	10.10	23.40
MDS-36C	36	1/4	1.400	1.470	5.85	10.95	25.35
MDS-36D	36	3/8	1.400	1.470	5.85	10.95	25.35
MDS-40C	40	1/4	1.554	1.628	6.45	12.05	27.95
MDS-40D	40	3/8	1.554	1.628	6.45	12.05	27.95
MDS-48C	48	1/4	1.865	1.939	7.30	13.60	31.55
MDS-48D	48	3/8	1.865	1.939	7.30	13.60	31.55

Miniature Delrin® Chain

Part No.	Description	1 Ft.	5 Ft.	10 Ft.
MDC-01	Miniature Delrin® Chain	\$4.35	\$20.30	\$37.70



Hex Key Set 7 Pieces

Seven keys in vinyl pouch include the following sizes: 5/64", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4".

HWS-S07 \$5.80



Delrin® and Brass Telescoping Drive Shaft

Our slideable telescoping drive shafts connect a rotating source to a load. Telescoping drive shafts facilitate the separation of mechanisms for servicing or replacement purposes. Joints consist of HUCO-POL® universal joints with acetal forks connected by PTFE coated square brass tubing. These joints are intended for applications which need neither rigidity nor the torque capabilities associated with steel drive shafts. Best suited for low speed operation.

Delrin® and Brass Telescoping Drive Shaft

Part No.	Bore Size	Dimensions in Inches		Coupling Maximum O.D.	Each
		Minimum Overall Length	Maximum Usable Length		
TDS-2/2	1/8 x 1/8	8.91	14.27	0.44	\$40.15
TDS-2/3	1/8 x 3/16	8.91	14.27	0.44	40.15
TDS-3/3	3/16 x 3/16	10.88	17.68	0.56	46.45
TDS-3/4	3/16 x 1/4	10.88	17.68	0.56	46.45
TDS-4/4	1/4 x 1/4	10.88	17.68	0.56	46.45
TDS-4/6	1/4 x 3/8	13.57	20.85	0.69	49.50
TDS-6/6	3/8 x 3/8	13.57	20.85	0.69	49.50



Misalignment Couplers Oldham Blind Bored

Operating on a sliding contact principle, misalignment couplers provide backlash-free

motion transfer without the risk of misalignment-induced metal fatigue. Typical uses are in robotics, machine tools, and measuring instruments.

The 3-part construction allows axial or radial separation of the drive train without removing the hubs from the shaft. This allows a convenient breakpoint for equipment servicing purposes.

Aluminum /Black Acetal Misalignment Couplers

Part No.	Bore Size	O.D.	Dimensions in Inches		Nominal Distance Between Shafts	Overall Length	Each	10
			Maximum Shaft Penetration					
OHC-2/2*	1/8 1/8	0.50	0.17	0.29	0.63	\$16.70	\$139.05	
OHC-3/3	3/16 3/16	0.75	0.25	0.37	0.87	18.95	157.95	
OHC-3/4	3/16 1/4	0.75	0.25	0.37	0.87	18.95	157.95	
OHC-3/5	3/16 5/16	0.75	0.25	0.37	0.87	18.95	157.95	
OHC-4/4	1/4 1/4	0.75	0.25	0.37	0.87	19.25	160.20	
OHC-4/5	1/4 5/16	0.75	0.25	0.37	0.87	19.25	160.20	
OHC-5/5	5/16 5/16	0.75	0.25	0.37	0.87	19.25	160.20	
OHCL-4/4	1/4 1/4	1.00	0.34	0.44	1.12	27.05	225.45	
OHCL-4/5	1/4 5/16	1.00	0.34	0.44	1.12	27.05	225.45	
OHCL-4/6	1/4 3/8	1.00	0.34	0.44	1.12	27.05	225.45	
OHCL-5/5	5/16 5/16	1.00	0.34	0.44	1.12	27.05	225.45	
OHCL-5/6	5/16 3/8	1.00	0.34	0.44	1.12	27.05	225.45	
OHCL-6/6	3/8 3/8	1.00	0.34	0.44	1.12	27.05	225.45	

*Type: Set Screws. Others Type: Clamp

Black Acetal Torque Discs Replacement

Dimensions in Inches			
Part No.	Outside Diameter	Each	10
OHTD-03	0.50	\$1.15	\$9.25
OHTD-04	0.75	1.30	10.60
OHTD-05	1.00	2.45	20.50



Fold Up Hex Key Set 9 Pieces

Contains nine Allen bits in these sizes: 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4".

HWS-FS09 \$11.60

Metric Fold Up Hex Key Set 7 Pieces

Contains seven Allen bits in metric sizes: 1.5, 2, 2.5, 3, 4, 5, 6mm.

HWS-FM07 \$11.90

Delrin® and Brass Universal Joints

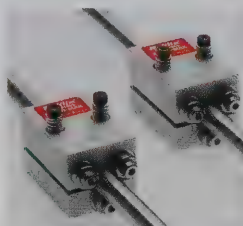
These single universal joints are capable of driving through angles of up to 45° and are excellent for shaft couplings when there is a possibility of angular misalignment. They will NOT accept, however, parallel shaft misalignment. All parts are constructed of non-ferrous materials with the exception of the alloy steel set screws. No lubrication is necessary. The unusual design of these units provide for continuous or interrupted motion with a minimum of backlash. Bore Tolerance +0.001" - 0.000".



Delrin and Brass Universal Joints

Part No.	Bore Sizes	Dimensions in Inches				Max. Rec. Torque*	Each	10
		A	B	D	Bore Length			
UJD-2/2	1/8 x 1/8	1.05	0.28	0.25	0.37	16	\$16.55	\$144.00
UJD-2/3	1/8 x 3/16	1.48	0.44	0.37	0.52	56	17.95	155.95
UJD-3/3	3/16 x 3/16	1.48	0.44	0.37	0.52	56	17.95	155.95
UJD-3/4	3/16 x 1/4	1.82	0.56	0.50	0.62	152	19.95	173.20
UJD-4/4	1/4 x 1/4	1.82	0.56	0.50	0.62	152	19.95	173.20
UJD-5/5	5/16 x 5/16	2.66	0.69	0.62	0.86	240	21.75	189.05
UJD-6/6	3/8 x 3/8	2.66	0.69	0.62	0.86	240	21.75	189.05

*Ounces per inch.

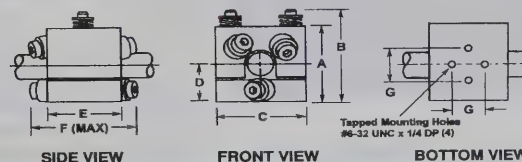


Linear Actuators

The Roh'lix® is a threadless, mechanical screw-type linear actuator that converts rotary motion into precise linear motion and thrust with the unique ability to slip if overloaded. The Roh'lix® uses **rolling** element ball bearing that trace a helix pattern along a shaft, which produces a rolling helix, or Roh'lix® for short.

Roh'lix® Actuators have six precision ball bearings, three at each end of a two-piece aluminum block. Mounted at an angle relative to the drive shaft axis, the bearings convert drive shaft rotation into proportional linear travel. This is called lead. The lead is determined by the angle of the bearings in the block.

The linear thrust capability of the Roh'lix® is determined by the friction between the surfaces of the angled bearings and the drive shaft. Thrust capability is varied by adjusting the cap screws located on the top of the lead block.



Linear Motion Slides

Part No.	Shaft Diameter	Dimensions in Inches							Thrust Rating	Each	
		A	B	C	D	E	F	G			
ZM-1104	3/8	1.14	1.66	1.12	0.57	1.62	2.25	0.75	0.03	5 lbs.	\$109.75
ZM-1111	3/8	1.14	1.66	1.12	0.57	1.62	2.25	0.75	0.10	15 lbs.	109.75

Lead Screws with Anti-Backlash Nuts

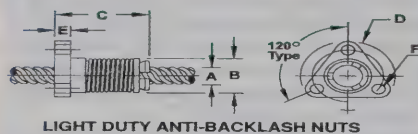


Lead Screws with Anti-Backlash Nuts are very effective linear actuators, especially where precise positional accuracy and repeatability are necessary. Position repeatability is within 50 micro-inch (0.0013 mm). Standard lead accuracy is 0.0006". Light and heavy duty nuts are available for different load applications. Other lengths are available. Lead Screws & Nuts Sold Separately.

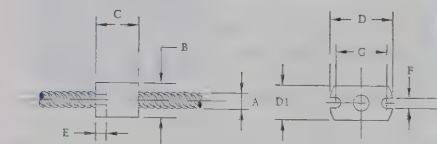
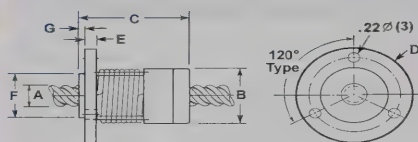
Lead Screws

Part No.	Screw Diameter	Dimensions in Inches		24	36
		Lead	Description		
LSX-2504	1/4	0.250	Fits w/LSX-2504Z	\$50.00	\$77.65
LSX-2516	1/4	1.000	Fits w/LSX-2516Z	50.00	77.65
LSX-3708	3/8	0.500	Fits w/LSX-3708Z	53.70	84.10
LSX-3716	3/8	1.000	Fits w/LSX-3716Z	53.70	84.10
LSX-3724	3/8	1.500	Fits w/LSX-3724Z	53.70	84.10
LSX-5008	1/2	0.500	Fits w/LSX-5008V/Z	72.85	107.45
LSX-5016	1/2	1.000	Fits w/LSX-5016V/Z	72.85	107.45

Light Duty and Heavy Duty and Miniatures Anti-Backlash Nuts



LIGHT DUTY ANTI-BACKLASH NUTS



Light Duty Anti-Backlash Nuts Polyacetal

Dimensions in Inches											
Part No.	Lead	Screw Diameter	Nut Diameter	Nut Length	Flange Diameter	Flange Thick.	Mount. Holes	Torque (oz.-in.)	Design Load (lbs)	Efficiency %	Price Each
LSX-2504Z	0.250	1/4	0.50	1.0	1.0	.18	.140	0.5-2	5	79	\$20.00
LSX-2516Z	1.000	1/4	0.50	1.0	1.0	.18	.140	0.5-2	5	84	20.00
LSX-3708Z	0.500	3/8	0.70	1.9	1.5	.18	.20	1-3	10	81	29.45
LSX-3716Z	1.000	3/8	0.70	1.9	1.5	.18	.20	1-3	10	84	29.45
LSX-3724Z	1.500	3/8	0.70	1.9	1.5	.18	.20	1-3	10	83	29.45
LSX-5008Z	0.500	1/2	0.89	2.0	1.62	.26	.20	2-5	25	79	38.10
LSX-5016Z	1.000	1/2	0.89	2.0	1.62	.26	.20	2-5	25	84	38.10

Heavy Duty Anti-Backlash Nuts Polyacetal

Dimensions in Inches											
Part No.	Lead	A Screw Diameter	B Nut Diameter	C Nut Length	D Flange Diameter	E Flange Thick.	F Hub Diameter	Drag Torque (oz.-in.)	Design Load (lbs.)	Efficiency %	Price Each
LSX-5008V	0.500	1/2	1.12	2.3	1.75	.23	.93	2-6	150	79	\$81.80
LSX-5016V	1.000	1/2	1.12	2.3	1.75	.23	.93	2-6	150	84	81.80

Lead Screw and Anti-Backlash Nut Assembly Polyacetal

Dimensions in Inches											
Part No.	Lead	A Screw Dia.	B Nut Dia.	C Nut Length	D1 Flange Height	D Flange Width	E Flange Thick.	F Mount. Holes	Drag Torque (oz.-in.)	Design Load (lbs)	Bolt Circle Each
LSX-125024Z-12	0.024	1/8	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 \$48.25
LSX-125048Z-12	0.048	1/8	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25
LSX-125096Z-12	0.096	1/8	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25
LSX-125375Z-12	0.375	1/8	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25
LSX-187024Z-12	0.024	3/16	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25
LSX-187048Z-12	0.048	3/16	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25
LSX-187096Z-12	0.096	3/16	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25
LSX-187375Z-12	0.375	3/16	0.4	0.5	0.40	0.75	0.13	0.12	0.5	25	0.600 48.25

Dashpot Snubbers

Prevent shock damage to your sensitive equipment, and reduce impact noise and bounce with the Airpot® dashpot snubber. Precise and accurate, this pneumatic deceleration device is a non-electrical, low-cost control for positioning, sequencing and scanning mechanisms that need damping at the end of travel.

Pneumatic dashpots work by forcing air through an orifice to dissipate kinetic energy, which is transformed into heat by the molecular friction of compression and vented to the atmosphere. The snubber uses ambient air as the damping medium. The force to be damped is transmitted through the piston rod, which moves the piston within the cylinder. Orifice settings are adjustable over a 10,000:1 range to control the degree of damping desired. Note: In addition to the snubber, an external stop for positive positioning is required for the moving load.

Compact for limited space and locked-in designs, these ultra-low friction, push-directional units require no lubrication or maintenance, won't rust or corrode, have no seals to leak or cause drag, and can be mounted to operate in any position. The snubber uses a graphitized carbon for the piston and Pyrex® for the cylinder, for high strength and operational stability in temperatures ranging from -107° to 212°F (-75° to 100°C). A snug-fitting Buna-N cover on the cylinder protects against breakage during installation or use.

Dashpot snubbers are used in many kinds of equipment, including copiers, duplicating and printing machines, semi conductor processing equipment, assembly and conveying equipment, etc.

ASD-160 has an absorption range of 0 to 0.3 foot pounds. It has a urethane push rod and uses a 1/4" hex screw capped with a removable plastic twist knob for orifice adjustment.

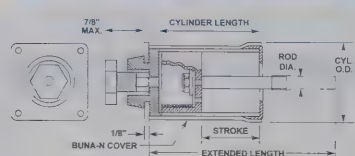
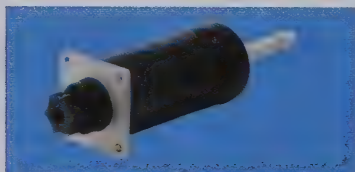
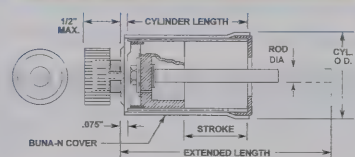
ASD-325 has a rigid Delrin® rod with a urethane bumper for effective impact absorption from 0 to 3.0 foot pounds. It uses a 7/8" hex-shaped polyurethane threaded knob for damping adjustment and is provided with a pre-drilled 1 - 3/4" square aluminum mounting flange. Flange Holes diameter: 0.173".

Specifications

Part No.	Spring Force			Rod Diameter	Damping Coefficient lbs./in./second
	Friction	Extended	Compressed		
ASD-160	2gms.	0.16 #	0.28 #	0.375"	2.5
ASD-325	4gms.	0.25 #	0.5 #	0.312"	20

Dashpot Snubbers

Dimensions in Inches						
Part No.	Cylinder O.D.	Cylinder Length	Extended Length	Stroke	Absorption Range	Each
ASD-160	0.980 max.	2	4.075	1.25	0 to 0.3 ft. lb.	\$56.50
ASD-325	1.805 max.	3.475	5.75	2.25	0 to 3 ft. lb.	71.15



Kwik-Lok™ Pins

Kwik-Lok™ pins are manufactured in a wide range of sizes to meet any application. We offer short lead times for special sizes or features. Available in "T", Ring, "L" and Button Handles, in both inch or metric sizes. Inventory levels may vary on metric and larger diameter inch sizes. Price discounts may be available for quantities greater than 10 pieces. Contact our special order department for quote.

- Handle is black cast aluminum.
 - Button is blue anodized aluminum.
 - Material: Stainless Steel (Carbon Steel available upon request)
 - Lot Number is etched on handle
 - Includes a ring for easy attachment of option lanyard
- Jergens Kwik-Lok™ pins are designed and manufactured to meet or exceed these standards and specifications

Materials and Specification/Standards

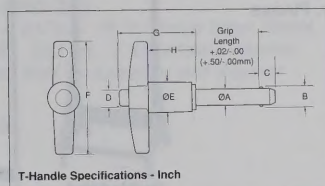
Part Descriptions	Materials	Specifications/Standards
Body (shank) /Spindle	CRES 17-4PH/Alloy Steel 4130	SAE AMS 5643
T and L Handles	Aluminum (380) Casting	SAE AMS 4291; ASTM B-85; SAE J-452
Button Handles	Aluminum 2024	SAE AMS QQ-A-225/6

- **Heat Treatment:** Stainless Steel: Body/Spindle per MIL-H-6875, Condition H-900, Rockwell C40 min. Alloy Steel: Body/Spindle to Rockwell C36-40
- **Surface Treatment:** Cres Parts - Passivate per QQ-P-35, Alloy Steel Parts - Cadum plate per QQ-P-416, Type II, Class 2
- **Aluminum Alloy Parts:** Anodize per MIL-A-8625 type I or II, Class 2 or chemical film per MIL-C-5541, Class 11A. Handles are black.
- **Designed to meet or exceed NAS specifications:** NASM 23460; NASM 17984 thru 17990; NAS 1332, NASM 1333 thru 1346

Kwik Loc™ is a trade mark of Jergens Inc.

T-Handle Specifications (Inch)

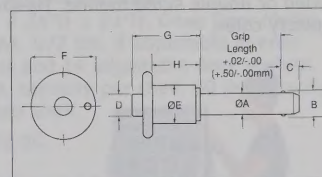
T-handle Specifications (mm)									
Nom Pin Dia.	Ø A		0.005	+0.000/-0.040	Button Dia.	Handle Dia.	Handle Width	Handle Height	Handle Clear
	Max.	Min.	B	C	Ø D	Ø E	F	G	H
3/16	0.189	0.187	0.220	0.260	1/4	1/2	1 13/16	1 1/4	3/4
1/4	0.249	0.247	0.289	0.290	1/4	1/2	1 13/16	1 1/4	3/4
5/16	0.311	0.310	0.375	0.330	1/4	1/2	1 13/16	1 1/4	3/4
3/8	0.374	0.372	0.440	0.365	5/16	19/32	2	1 7/16	15/16
7/16	0.436	0.435	0.509	0.380	5/16	19/32	2	1 7/16	15/16
1/2	0.499	0.497	0.594	0.460	15/32	3/4	2	1 5/8	1



T-Handle Specifications - Inch

Button Handle Specifications (Inch)

Nom Pin Dia.	Ø A		+/- .005	0	Button Dia.	Handle Dia.	Handle Width	Handle Height	Handle Clear.
	Max	Min.	B	C	Ø D	Ø E	F	G	H
3/16	0.188	0.187	0.220	0.260	1/4	1/2	13/16	7/8	5/8
1/4	0.248	0.247	0.289	0.290	1/4	1/2	13/16	7/8	5/8
5/16	0.311	0.310	0.375	0.330	1/4	1/2	13/16	29/32	5/8
3/8	0.373	0.372	0.440	0.365	5/16	9/16	1 1/8	1 3/16	13/16
7/16	0.436	0.435	0.509	0.380	5/16	9/16	1 1/8	1 3/16	13/16
1/2	0.498	0.497	0.594	0.460	7/16	3/4	1 3/8	1 13/32	1



Kwik Lock Pins-T Handle

Dimensions in Inches

Part No.	Diameter	Grip Length	Each
KLT-03-08	3/16	1/2	\$16.30
KLT-03-12	3/16	3/4	16.30
KLT-03-16	3/16	1	16.30
KLT-04-08	1/4	1/2	15.75
KLT-04-12	1/4	3/4	15.75
KLT-04-16	1/4	1	17.15
KLT-04-20	1/4	1-1/4	18.30
KLT-04-24	1/4	1-1/2	18.30
KLT-05-08	5/16	1/2	18.30
KLT-05-12	5/16	3/4	18.30
KLT-05-16	5/16	1	18.30
KLT-05-20	5/16	1-1/4	21.45
KLT-05-24	5/16	1-1/2	19.05
KLT-06-08	3/8	1/2	19.05
KLT-06-12	3/8	3/4	19.05
KLT-06-16	3/8	1	21.80
KLT-06-20	3/8	1-1/4	21.80
KLT-06-24	3/8	1-1/2	21.80
KLT-06-28	3/8	1-3/4	21.80
KLT-06-32	3/8	2	31.60
KLT-08-16	1/2	1	32.60
KLT-08-20	1/2	1-1/4	32.60
KLT-08-24	1/2	1-1/2	32.60
KLT-08-28	1/2	1-3/4	34.20
KLT-08-32	1/2	2	34.20

Kwik Lock Pins-Button Handle

Dimensions in Inches

Part No.	Diameter	Eff. Length	Price
KLB-03-08	3/16	1/2	\$16.30
KLB-03-12	3/16	3/4	16.30
KLB-03-16	3/16	1	16.30
KLB-04-08	1/4	1/2	15.75
KLB-04-12	1/4	3/4	17.15
KLB-04-16	1/4	1	17.15
KLB-04-20	1/4	1-1/4	18.30
KLB-04-24	1/4	1-1/2	18.30
KLB-05-08	5/16	1/2	18.30
KLB-05-12	5/16	3/4	18.30
KLB-05-16	5/16	1	18.30
KLB-05-20	5/16	1-1/4	19.85
KLB-05-24	5/16	1-1/2	21.45
KLB-06-08	3/8	1/2	19.05
KLB-06-12	3/8	3/4	19.05
KLB-06-16	3/8	1	19.05
KLB-06-20	3/8	1-1/4	21.80
KLB-06-24	3/8	1-1/2	21.80
KLB-06-28	3/8	1-3/4	21.80
KLB-06-32	3/8	2	21.80
KLB-08-16	1/2	1	32.65
KLB-08-20	1/2	1-1/4	32.60
KLB-08-24	1/2	1-1/2	32.60
KLB-08-28	1/2	1-3/4	34.20
KLB-08-32	1/2	2	34.20

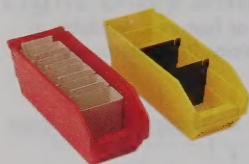


Pilot Punches

Carefully designed to safely and quickly remove roll or spring pins. The round ball on the center of the point end assures proper contact, eliminating damage to pin or wall of hole. You'll find Spring Pins at www.smallparts.com.

Pilot Punch Set

DRPP-100 Contains nine Pilot punches 1/16" trough 5/16" listed above. Placed in plastic Kit. \$56.00



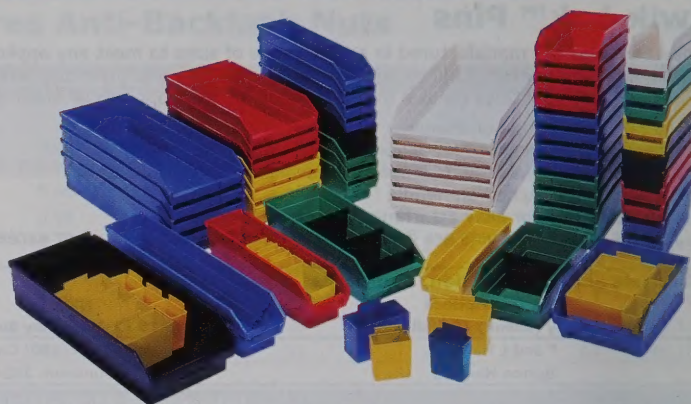
Dividers

Optional dividers fit snugly, horizontally across bins and are uniquely designed to allow for easy part labeling via individual label slots.

Bin Cups

Bin Cups have a raised, slotted label holder for easy parts identification. Available in 2 sizes and 2 colors, the entire bin cup may be removed for easy part retrieval

Bin Cups				
Part No.	Dimensions in Inches	CTN QTY	CTN WGT	Each
	Outside Dimension L" x W" x H"			
2229-QBC111	3-1/4" x 1-3/4" x 3	48	4 lbs	\$0.32
2229-QBC112	5-1/8" x 2-3/4" x 3	48	7 lbs	0.58



Complete Packages

Clear Tip-Out Bin Floor Stands Single, Double and Mobile

Nine preconfigured units exist as pictured allowing you to purchase your tip-out unit exactly as shown here. The flexibility of the system also allows you to customize and create your own configurations (see chart for all possibilities). All steel units are formed from heavy duty 14 gauge steel and have a smooth powder coat finish ensuring years of use. Three different heights to choose from: 24", 48" or 70". Units are single sided, double sided or double sided mobile. Tip-Out bins are available in Ivory, White or Gray. Please specify color.



QFS 248 76 + QFS400



QFS 224 24 + QFS400



QFS 270 72

Create Your Own Configuration



Double Sided Mobile



Single Sided Mobile



Double Sided



Wall Frames

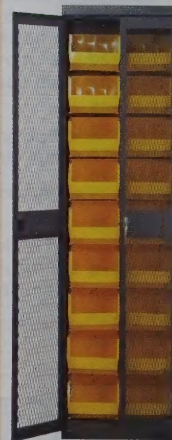
Clear Tip Out Bin Floor Stands Single, Double and Mobile

Part No.	Description	Dimensions in Inches		CTN WGT	Each	Qty. of Bins to Fit Unit						
		Dimension D x W x H				QTB 302	QTB 303	QTB 304	QTB 305	QTB 306	QTB 309	
Floor Stands – Single Sided (Disks and Screws Required)												
2229-QFS124	24”H Single Sided (Workstation)	8 x 23-5/8 x 28	11 lbs	\$135.92	1	2	3	3	5	8		
2229-QFS148	48”H Single Sided	8 x 23-5/8 x 52	19 lbs	154.83	3	5	6	7	11	16		
2229-QFS170	70”H Single Sided	8 x 23-5/8 x 75	20 lbs	177.72	5	7	8	10	15	23		
Floor Stands – Double Sided (Disks and Screws Required)												
2229-QFS224	24”H Double Sided (Workstation)	16 x 23-5/8 x 28	21 lbs	225.24	2	4	6	6	10	16		
2229-QFS248	48”H Double Sided	16 x 23-5/8 x 52	36 lbs	262.56	6	10	12	14	22	32		
2229-QFS270	70”H Double Sided	16 x 23-5/8 x 75	42 lbs	291.14	10	14	16	20	30	46		
Mobile Kit (Includes four casters and one handle)												
2229-QFS400	Mobile Kit for Double Sided Units		9 lbs	87.08	-	-	-	-	-	-		
Wall Mounted Frames (Disks and Screws Required)												
2229-QTF24	24”H Wall Mount Unit		3 lbs	39.38	1	2	3	3	5	8		
2229-QTF48	48”H Wall Mount Unit		5 lbs	53.28	3	5	6	7	11	16		
2229-QTF70	70”H Wall Mount Unit		7 lbs	72.63	5	7	8	10	15	23		
Disks and Screws												
2229-QDS300	2 Disk and 2 Screws (1 set)		1 lbs	1.68	-	-	-	-	-	-		

Note: Please Specify bin color in comments field when placing order. Yellow bins will be shipped if no color is specified.

36" Clear-View Security Bin Cabinet

36"W x 18"D x 78"H. Total of 28 bins. Clear door model. Ship wt. 388 lbs. Louvered back wall fits 20 QUS 240 & 8 QUS 250. Additional cabinet configurations listed. Bins available in Blue, Red, Yellow, Green, Ivory and Black (one color per cabinet). Please specify.



QSC C240250

\$1,810.61



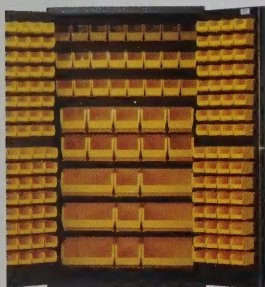
Go to www.smallparts.com

For more Quantum products.

48" Wide All-Welded Bin Cabinets

These 48" wide models offer all the features of the 36", but offer additional storage space. Bins are available in Blue, Yellow, Green, Red, Ivory and Black (one color per cabinet). Please specify color.

Note: Please Specify bin color in comments field when placing order. Yellow bins will be shipped if no color is specified. Cabinet shipping takes 10-15 days after order is placed.



2229-QSC-4

48"W x 24"D x 78"H. Total of 171 bins. Flush Door Model. Ship Wt. 522 lbs. 64 2229-QUS210, 64 2229-QUS220, 24 2229-QUS230, 13 2229-QUS240, and 6 2229-QUS250.

\$1,428.51



2229-QSC-48S

48"W x 24"D x 72"H. Total of 102 bins. Deep Door Model. Ship Wt. 465 lbs. 64 2229-QUS210, 64 2229-QUS220, 3 2229-QUS240, 6 2229-QUS250 and 3 adjustable shelves.

\$1,314.70

Note: Items in Bin are Not Included



2229-QSC-4804

48"W x 24"D x 78"H. Total of 84 bins. Flush Door Model. Ship Wt. 515 lbs. 20 2229-QUS240, 64 2229-QUS220, 2 adjustable interior shelves and 6 door shelves.

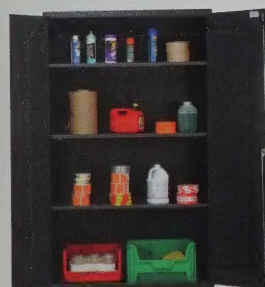
\$1,344.53



2229-QSC-4803

48"W x 24"D x 78"H. Total of 128 bins. Deep Door Model. Ship Wt. 505 lbs. 128 2229-QUS210, and 4 adjustable interior shelves.

\$1,142.70



2229-QSC-31S

48"W x 24"D x 78"H. Flush Door Model. Ship Wt. 323 lbs. 3 adjustable interior shelves. 800 lb. capacity per interior shelf

\$669.09



2229-QSC-41S-14DS

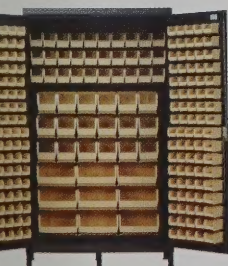
48"W x 24"D x 84"H. Deep Door Model. Ship Wt. 572 lbs. 4 adjustable interior shelves and 14 adjustable door shelves. 800 lb. capacity per shelf. 60 lb. capacity per door shelf.

\$1,272.05

Note: Items in Bin are Not Included

60" Super-Wide Colossal Heavy Duty Cabinets

Super wide, colossal cabinets offer 60" widths and 84" heights allowing for maximum and efficient storage while providing superior strength and security. Standard performance features: ships completely assembled, ready to use, 13 gauge all-welded construction, 3 point locking handle with provision for a padlock (not included) and 6" high legs make cabinets fork truck liftable. Bins are available in Blue, Yellow, Green, Red, Ivory and Black (one color per cabinet). Please specify color.



2229-QSC-60

60"W x 24"D x 84"H. Total of 227 bins. Flush Door Model. Ship Wt. 860 lbs. 80 2229-QUS210, 90 2229-QUS220, 30 2229-QUS230, 18 2229-QUS240 and 9 2229-QUS250.

\$2160.67



2229-QSC-60S

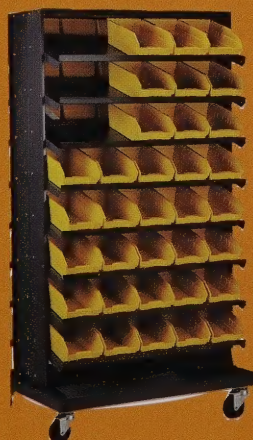
60"W x 24"D x 84"H. Total of 185 bins. Flush Door Model. Ship Wt. 878 lbs. 80 2229-QUS210, 90 2229-QUS220, 6 2229-QUS240, 9 2229-QUS250 and 3 adjustable Shelves.

\$2347.55

Perfect Solution For Your Quarantine Areas

Shelf Bin Sloped Shelving Systems

Complete Packages with Bins



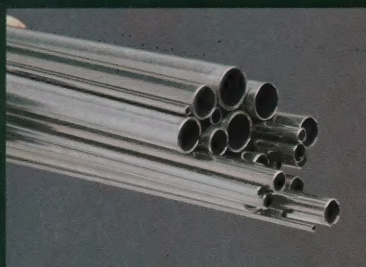
Pick Racks provide a convenient high density, easy access, sloped shelving system, available as bench units, single and double sided free standing and mobile units. Unit comes complete with economical shelf bins. Sloped shelving unit keeps small and medium sized parts easily accessible. Open hopper front bins with label area, provide fast access to stored items. This all-in-one unit is easy to clean and will not rust or corrode. See chart for configurations. Bins are available in Blue, Yellow, Red, Green, Ivory or Black. Please specify color. One bin color per unit.

QPRD-102 & QMKPR \$445.85

Storage

Heavy Duty 48" / 60" Bin Cabinets

Every Device Has at Least One Small Part



Tubing and Pipe

- Hypodermic Tubing
- Tygon
- PTFE



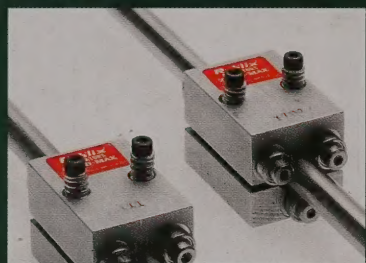
Wire & Springs

- 304/316 Stainless Steel
- Music Wire
- Aluminum / Brass / Copper



Fasteners

- Stainless Steel
- Ceramic
- Nylon



Drive Components

- Gears
- Chain
- Bearing



Raw Materials

- Metals
- Plastics
- Ceramics



Seals and Gaskets

- O-Rings
- High Performance Tapes
- Sealants



Filtration

- Plastic
- Metals
- Laboratory



Connectors and Fittings

- Barbed
- Luer
- Stainless Steel



Laboratory

- Labware
- Filters
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September 2006

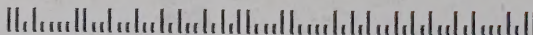
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